

PLOT TIME:

GENERAL NOTES

1. CONTRACTOR IS RESPONSIBLE FOR HAVING ALL BURIED UTILITIES IDENTIFIED, PROTECTED, REPLACED AND/OR PROPERLY REPAIRED IF DAMAGED. REPAIRS/REPLACEMENT SHALL BE AT CONTRACTOR'S EXPENSE.
2. CONTRACTOR SHALL OBTAIN AND MAINTAIN ON SITE ALL APPLICABLE PERMITS AND AN APPROVED COPY OF THE PLANS AND SPECIFICATIONS. NOTIFY THE CITY'S ENGINEERING DEPARTMENT 48 HOURS PRIOR TO COMMENCEMENT OF WORK.
3. CONTRACTOR IS RESPONSIBLE FOR NOTIFYING THE CITY'S ENGINEERING DEPARTMENT 24 HOURS PRIOR TO WEEKDAY WORK REQUIRING INSPECTION INCLUDING, BUT NOT LIMITED TO, LIMING, PAVING OPERATIONS, CONCRETE PLACEMENT, FORMING AND SET-UP, DENSITIES, PIPE INSTALLATION, AND ANY TESTING BY LABORATORIES. THE ENGINEERING DEPARTMENT MAY BE REACHED AT 281-275-2780 OR BY CONTACTING THE ASSIGNED INSPECTOR.
4. ALL SATURDAY WORK SHALL BE REQUESTED, IN WRITING, WITH THE CITY'S ENGINEERING DEPARTMENT AT LEAST 48-HOURS IN ADVANCE. SUNDAY AND HOLIDAY WORK REQUIRES 72 HR. WRITTEN REQUESTS AND MUST BE APPROVED BY THE CITY ENGINEER. FAXES MAY BE SENT TO (281) 275-2771. REQUIRED INSPECTIONS MAY BE SUBJECT TO INSPECTION FEES. NON-NOTIFICATIONS MAY RESULT IN NON-COMPLIANCE, WORK ORDERED STOPPAGE AND DOUBLE INSPECTION FEES.
5. FULL-TIME RESIDENT INSPECTION BY THE PROJECT ENGINEER'S REPRESENTATIVE SHALL BE PROVIDED AT ALL CRITICAL POINTS OF CONSTRUCTION AND AS DEEMED NECESSARY BY THE CITY OF SUGAR LAND.
6. DESIGN AND CONSTRUCTION SHALL CONFORM TO THE TEXAS COMMISSION OF ENVIRONMENTAL QUALITY RULES AND REGULATIONS FOR PUBLIC WATER SYSTEMS, THE CITY OF SUGAR LAND DESIGN MANUAL (ISSUED 2007), AND THE CITY OF SUGAR LAND STANDARD DETAIL SHEETS. THE CITY OF SUGAR LAND DESIGN STANDARDS SHALL BE ACQUIRED (AND USED) FROM THE ENGINEERING DEPARTMENT, THE LATEST REVISIONS AND/OR AMENDMENTS SHALL BE OBSERVED. WHERE CONFLICT MAY ARISE BETWEEN INFORMATION ON APPROVED CONSTRUCTION DRAWINGS AND/OR PROJECT SPECIFICATIONS AND CITY OF SUGAR LAND STANDARDS, THEN THE CITY DESIGN STANDARDS SHALL GOVERN
7. ALL STATIONS ARE CENTERLINE OF STREET RIGHT-OF-WAY UNLESS OTHERWISE NOTED ON THE PLANS EXCEPT IN SIDE OR BACK LOT EASEMENTS WHERE CENTERLINE IS CENTER OF PIPE. IN EASEMENTS WHERE SANITARY AND STORM SEWER ARE PRESENT PARALLEL, STATIONS SHALL BE BASED ON CENTERLINE OF STORM SEWER PIPING.
8. ADEQUATE DRAINAGE SHALL BE MAINTAINED AT ALL TIMES DURING CONSTRUCTION. ANY DRAINAGE AREA OR STRUCTURE DISTURBED, DURING CONSTRUCTION, SHALL BE RESTORED TO THE SATISFACTION OF THE CITY OF SUGAR LAND. ALL CONSTRUCTION STORM RUNOFF SHALL COMPLY WITH THE REQUIREMENTS OF THE CITY OF SUGAR LAND DESIGN STANDARDS. IF NON-COMPLIANCE OCCURS, CONTRACTOR SHALL REMEDY IMMEDIATELY AT HIS OWN EXPENSE.
9. ANY POLLUTION CONTROL DEVICE, SOD, OR SEEDED AREA DAMAGED, DISTURBED, OR REMOVED SHALL BE REPLACED OR REPAIRED AT THE CONTRACTOR'S EXPENSE. THE CONTRACTOR IS RESPONSIBLE FOR WATERING ANY SEED OR SOD WHICH HE HAS INSTALLED UNTIL ADEQUATE GROWTH IS ACHIEVED TO PREVENT EROSION.
10. STORM WATER POLLUTION PROTECTION SHALL BE DESIGNED, CONSTRUCTED, MAINTAINED AND SHALL BE IN TOTAL COMPLIANCE WITH THE STORM WATER QUALITY MANUAL OF THE CITY OF SUGAR LAND.
11. ANY MATERIALS OR WORKMANSHIP NOT MEETING OR EXCEEDING CITY OF SUGAR LAND STANDARDS IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND WILL BE REPAIRED OR REPLACED AT THE CONTRACTOR'S EXPENSE.
12. THE CONTRACTOR SHALL KEEP THE STREETS, RIGHT-OF-WAY, AND WORK AREA CLEAN OF DIRT, MUD, AND DEBRIS AS NEEDED OR AS REQUIRED BY CITY STAFF.
13. THE CONTRACTOR SHALL PROVIDE AND MAINTAIN ALL REQUIRED TRAFFIC SAFETY CONTROL DEVICES UP TO AND INCLUDING FLAGMEN OR POLICE OFFICERS, IF DEEMED NECESSARY BY THE CITY OF SUGAR LAND.
14. THE CONTRACTOR SHALL CONTACT THE CITY OR LOCAL MUD AS APPROPRIATE TO OPERATE EXISTING UTILITIES AND PRIOR TO MAKING TIE-INS.
15. ALL BACKFILL WITHIN PUBLIC RIGHTS-OF-WAY OR EASEMENTS SHALL BE COMPACTED TO 95% STANDARD PROCTOR DENSITY (IN 8 INCH LIFTS) AND TESTED FOR ±2% OPTIMUM BY AN APPROVED LAB.
16. IT IS PERMISSIBLE TO USE A BACKHOE FOR TRENCH EXCAVATION IN LIEU OF A TRENCHING MACHINE.
17. THE CONTRACTOR SHALL NEVER UNLOAD ANY TRACK-TYPE VEHICLE OR EQUIPMENT ON ANY EXISTING PAVEMENT OR CROSS OVER ANY EXISTING PAVEMENT OR CURB.
18. ALL FINISH GRADES ARE TO CONFORM TO A MINIMUM SLOPE OF 6" PER 100 FT. POSITIVE DRAINAGE IS DEPICTED BY ARROWS.
19. CONTRACTOR SHALL UNCOVER EXISTING UTILITIES AT ALL "POINTS OF CROSSING" TO DETERMINE IF CONFLICTS EXIST BEFORE COMMENCING ANY CONSTRUCTION. NOTIFY THE ENGINEER AT ONCE OF ANY CONFLICT.
20. ALL FINISHED GRADES SHALL VARY UNIFORMLY BETWEEN FINISHED ELEVATIONS.
21. ALL TESTING PROCEDURES SHALL CONFORM TO THE CITY OF SUGAR LAND STANDARDS. THE INITIAL TESTING EXPENSE SHALL BE BORNE BY THE OWNER. IF ANY OF THE TESTS DO NOT MEET THE TESTING STANDARDS, IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO REMOVE OR REPLACE SUCH MATERIAL SO THE TESTING STANDARDS CAN BE MET. ADDITIONAL TESTING TO MEET COMPLIANCE SHALL BE AT THE CONTRACTOR'S EXPENSE.
22. CONTRACTOR SHALL PROVIDE SHEETING, SHORING, AND BRACING AS NECESSARY TO PROTECT WORKMEN AND EXISTING UTILITIES DURING ALL PHASES OF CONSTRUCTION AS PER O.S.H.A. REQUIREMENTS.
23. ALL MATERIALS AND WORKMANSHIP SHALL CONFORM TO THE TXDOT STANDARD SPECIFICATIONS, 2003, AND THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (2000), AND ANY REVISIONS THERETO.
24. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SAFEGUARDING AND PROTECTING ALL MATERIALS AND EQUIPMENT STORED ON THE JOBSITE IN A SAFE AND WORKMAN-LIKE MANNER (DURING AND AFTER WORKING HOURS), UNTIL JOB COMPLETION.
25. THE LOADING AND UNLOADING OF ALL PIPE, VALVES, HYDRANTS, MANHOLES, AND OTHER ACCESSORIES SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDED PRACTICES AND SHALL BE PERFORMED WITH CARE TO AVOID ANY DAMAGE TO THE MATERIAL. THE CONTRACTOR SHALL LOCATE AND PROVIDE THE NECESSARY STORAGE AREAS FOR MATERIAL AND EQUIPMENT.
26. THE CONTRACTOR SHALL FURNISH ALL MATERIALS, EQUIPMENT, AND LABOR FOR EXCAVATION, INSTALLATION, AND COMPLETION OF THE PROJECT AS SHOWN ON THE PLANS AND SPECIAL PROVISIONS TO COMPLY WITH CITY OF SUGAR LAND STANDARDS.
27. NO PRIVATE UTILITIES (I.E., PHONE, CABLE T.V., ELECTRICITY, ETC.) SHALL BE INSTALLED WITHIN 4 FEET BACK OF CURB.
28. PLANS DO NOT EXTEND TO OR INCLUDE DESIGNS OR SYSTEMS PERTAINING TO THE SAFETY OF THE CONTRACTOR OR ITS EMPLOYEES, AGENTS, OR REPRESENTATIVES IN THE PERFORMANCE OF THE WORK. THE SEAL OF THE REGISTERED PROFESSIONAL ENGINEER(S) HEREON DOES NOT EXTEND TO ANY SUCH SYSTEMS THAT MAY NOW OR HEREAFTER BE INCORPORATED IN THE PLANS. THE CONTRACTOR SHALL PREPARE OR OBTAIN THE APPROPRIATE SAFETY SYSTEMS, INCLUDING CURRENT OSHA STANDARDS FOR TRENCH SAFETY SYSTEMS, SEALED BY A LICENSED PROFESSIONAL ENGINEER. APPROPRIATE TRENCH SAFETY PLANS SHALL BE SUBMITTED BY THE CONTRACTOR PRIOR TO EXECUTION OF A CONTRACT FOR HIS WORK.

CONCRETE/PAVING NOTES

1. CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL PERMITS AND AUTHORIZATION REQUIRED BY CITY OF SUGAR LAND.
2. CONTRACTOR SHALL HAVE ALL UTILITIES LOCATED PRIOR TO CONSTRUCTION AND WILL REPAIR OR REPLACE ANY DAMAGE AT CONTRACTOR'S EXPENSE.
3. PAVING CONTRACTOR SHALL PROTECT WATER, SEWER, AND DRAINAGE FACILITIES AND WILL REPLACE ANY DAMAGED FACILITIES AT HIS OWN EXPENSE. ALL MANHOLES AND VALVES WITHIN THE PAVEMENT AREA SHALL BE ADJUSTED TO FINISH GRADE BY THE PAVING CONTRACTOR WITH THE USE OF APPROVED BLOCKOUTS.
4. WHEN THE TOP OF CURB OR BOTTOM OF SIDEWALK SLAB ELEVATION VARIES FROM THE NATURAL GROUND, THE PAVING CONTRACTOR SHALL BACKFILL IN LAYERS NOT EXCEEDING 8-INCHES IN DEPTH. EACH LAYER WILL BE COMPACTED TO A MINIMUM OF 95% STANDARD PROCTOR DENSITY. THE DISTURBED AREA SHALL BE SEEDED, SODDED, FERTILIZED, AND/OR SILT BARRIER FENCED WITHIN 10 WORKING DAYS. THE TYPE OF POLLUTION CONTROL WILL BE DETERMINED BY THE APPROVED PLANS AND/OR THE CITY OF SUGAR LAND CITY ENGINEER.
5. ALL PAVING SHALL BE IN ACCORDANCE WITH THE CITY OF SUGAR LAND DESIGN STANDARDS, APPROVED PLANS AND SPECIFICATIONS WITH THE LATEST REVISIONS OR AMENDMENTS. IN THE EVENT OF A CONFLICT, THE CITY OF SUGAR LAND DESIGN STANDARDS GOVERNS.
6. PAVING CONTRACTOR SHALL PROVIDE AND MAINTAIN SILT PROTECTION FENCES ON ALL STAGE I CURB INLETS. THE PAVING CONTRACTOR SHALL MAINTAIN ANY OTHER POLLUTION CONTROLS ESTABLISHED, I.E., ADDITIONAL SILT BARRIERS, SAND BAGS, ETC., FOR THE DURATION OF THE PROJECT. ANY DAMAGED OR MISSING DEVICES SHALL BE REPAIRED OR REPLACED AT THE CONTRACTOR'S EXPENSE.
7. EXISTING PAVEMENTS, CURBS, SIDEWALKS, DRIVEWAYS, ETC., DAMAGED OR REMOVED DURING CONSTRUCTION SHALL BE REPLACED TO THE CITY OF SUGAR LAND STANDARDS AT THE CONTRACTOR'S EXPENSE.
8. CONDITION OF THE WORK AREA (INCLUDING ROADS, RIGHT-OF-WAYS, ETC.) UPON COMPLETION OF THE JOB SHALL BE AS GOOD OR BETTER THAN THE CONDITION PRIOR TO STARTING THE WORK.
9. ALL DRIVEWAYS WILL BE LOCATED TO AVOID EXISTING CURB INLET STRUCTURES.
10. REDWOOD AND KEYWAYS SHALL NOT INTERSECT WITHIN 2 FEET OF AN INLET.
11. AT INITIAL AND FINAL INSPECTIONS THE PAVEMENT THE PAVEMENT WILL BE FLOODED TO CHECK FOR BIRDBATHS AND CRACKS
12. ALL CONCRETE PLACED SHALL BE UNIFORMLY SPRAYED WITH A MEMBRANE CURING COMPOUND AS DESCRIBED IN ITEM 526 IN THE TXDOT STANDARD SPECIFICATIONS FOR CONSTRUCTION. IMPROPER APPLICATION WILL RESULT IN THE REJECTION OF THE CONCRETE.
13. SIX (6) INCH, 5.5 SK, 3500 PSI @ 28 DAYS, REINFORCED WITH #4 REBAR, 24" C.C. EACH WAY IS THE MINIMUM ACCEPTABLE CONSTRUCTION FOR LOCAL STREETS
14. SEVEN (7) INCH, 5.5 SK, 3500 PSI @ 28 DAYS, REINFORCED WITH #4 REBAR, 18" C.C. EACH WAY IS THE MINIMUM ACCEPTABLE PAVEMENT CONSTRUCTION FOR COLLECTOR STREETS
15. EIGHT (8) INCH, 5.5 SK, 3500 PSI @ 28 DAYS, REINFORCED WITH #4 18" C.C. EACH WAY IS THE MINIMUM ACCEPTABLE FOR ARTERIAL STREETS.
16. WHEN 6" CONCRETE PAVEMENT INTERSECTS 7" PAVEMENT, 7" PAVEMENT SHALL BE CONSTRUCTED TO THE ENDS OF ALL CURB RETURNS.
17. ALL RETURNS SHALL HAVE A MIN. 25 FT. RADIUS AT THE FACE OF CURB UNLESS OTHERWISE NOTED.
18. ALL INTERSECTIONS SHALL BE CONSTRUCTED WITH WHEELCHAIR RAMPS IN ACCORDANCE WITH THE TEXAS ACCESSIBILITY STANDARD, THE AMERICAN DISABILITIES ACT, AND THE CITY OF SUGAR LAND STANDARDS (LATEST REVISIONS).
19. CONCRETE SIDEWALKS SHALL BE CONSTRUCTED WITHIN EACH STREET RIGHT-OF-WAY IN ACCORDANCE WITH CITY OF SUGAR LAND, THE A.D.A., AND THE T.A.S. STANDARDS (LATEST REVISIONS).
20. CRACKS LARGER THAN 1/16-INCH ARE NOT ACCEPTABLE IN NEW PAVEMENT. CRACKS 1/16-INCH OR LESS SHALL BE ADDRESSED ON AN INDIVIDUAL BASIS, SUBJECT TO APPROVAL OR REJECTION.
21. PROPER TESTING AND LAB DOCUMENTATION IS REQUIRED. FAILURE TO MEET THE MINIMUM PAVEMENT REQUIREMENTS WILL RESULT IN THE REJECTION OF SAID PAVEMENT. IMMEDIATE REMOVAL AND REPLACEMENT OF SUBSTANDARD PAVEMENT SECTIONS WILL BE NECESSARY TO SATISFY THESE REQUIREMENTS.
22. LIME DEPTH DETERMINATIONS WILL BE CONDUCTED AT EACH LOCATION OF DENSITY TESTING, LIME-STABILIZED SUBGRADE SHALL BE A MINIMUM OF 6% AT 8" UNLESS OTHERWISE DIRECTED BY CITY ENGINEER. DENSITY TESTING SHALL BE DONE IMMEDIATELY PRIOR TO PLACEMENT OF REINFORCING STEEL, AND SHALL BE COMPACTED TO A MINIMUM OF 95%. SUBGRADE DENSITY TESTS SHALL BE RETAKEN IN THE EVENT OF A ≥ 1/2-INCH RAINFALL EVENT AT THE CONTRACTOR'S EXPENSE. NO CONCRETE SHALL BE PLACED IN STANDING WATER OR IF MOISTURE CONTENT OF SUBGRADE IS IN NON-COMPLIANCE WITH SPECIFICATIONS FOR ± 2% OF OPTIMUM
23. 4--CONCRETE CYLINDERS, SLUMP, AND AIR ENTRAINMENT TESTS ARE REQUIRED FOR EACH 100 CUBIC YARDS OF CONCRETE PAVING WITH A MINIMUM OF ONE SET OF 4 PER PLACEMENT. THE CITY OF SUGAR LAND RESERVES THE RIGHT TO REQUEST ANY ADDITIONAL TESTS AT THE CONTRACTOR'S EXPENSE, IF ANY MATERIAL APPEARS BELOW STANDARDS.
24. NO. 3 REBAR, 18-INCH C.C. E.W. IS THE MINIMUM ACCEPTABLE FOR SIDEWALKS. NUMBER 4--REBAR, 24-INCH C-C. EACH WAY IS THE MINIMUM ACCEPTABLE FOR COMMERCIAL APPROACHES, HANDICAP RAMPS, RESIDENTAL APPROACHES AND DRIVEWAYS.
25. COLD WEATHER PRECAUTIONS. CONCRETE PAVEMENT SHALL NOT BE PLACED WHEN THE AMBIENT TEMPERATURE IS 40°F AND FALLING. CONCRETE MAY BE PLACED IF THE AMBIENT TEMPERATURE IS 35° AND RISING. CONTRACTOR SHALL PROVIDE AN APPROVED COVERING MATERIAL (COTTON MATS, POLYETHYLENE SHEETING, ETC.) IN THE EVENT TEMPERATURE SHOULD FALL BELOW 32°F. NO SALT OR OTHER CHEMICALS SHALL BE ADDED TO CONCRETE TO PREVENT FREEZING.
26. HOT WEATHER. NO CONCRETE PAVEMENT MIXTURE SHALL BE PLACED IF THE MIXTURE TEMPERATURE IS ABOVE 95°F. AIR AND WATER REDUCER ARE REQUIRED IF MIXTURE TEMPERATURE REACHES 85°F OR ABOVE.
27. IF NO AIR AND WATER REDUCER HAS BEEN ADDED, NO CONCRETE SHALL BE PLACED IF MORE THAN 60 MINUTES PAST BATCH TIME. IF AIR AND WATER REDUCER HAS BEEN ADDED, NO CONCRETE SHALL BE PLACED IF MORE THAN 90 MINUTES PAST BATCH TIME.
28. STRUCTURE TEMPERATURES AND TIMING FOR CONCRETE PLACEMENT MAY VARY. REFER TO TXDOT STANDARDS ITEM 420 FOR DETAILS.
29. TRANSVERSE EXPANSION JOINTS ARE REQUIRED AT A MAXIMUM SPACING OF SIXTY (60) FT. C-C WITH VERTICAL REDWOOD JOINTS EXTENDING THROUGH THE CURB @ EVERY EXPANSION JOINT. ALL JOINTS AND VERTICAL CURB JOINTS TO BE SEALED WITH LIQUID RUBBER CONFORMING TO TXDOT ITEM 380.2(6)(C, CLASS--2 (HOT POURED RUBBER).
30. EXPANSION JOINT LAYOUT FOR INTERSECTIONS SHALL BE PROVIDED BY ENGINEER FOR CITY APPROVAL.
31. NO WIRE MESH IS ALLOWED IN ANY CONCRETE WITHIN THE CITY LIMITS OR ETJ.
32. ALL REBAR SHALL BE 100% TIED. OVERLAPS SHALL BE DOUBLE TIED MINIMUM.
33. ALL NEW CURB REQUIRES 3,000 P.S.I. @ 28-DAYS. 4 CONCRETE CYLINDERS, SLUMP, AND AIR ENTRAINMENT TESTS ARE REQUIRED FOR EACH 50 CUBIC YARDS OF CONCRETE CURB WITH A MINIMUM OF ONE SET OF 4 PER PLACEMENT.
34. REFER TO GENERAL NOTES.

CEMENT STABILIZED SAND

1. ALL STABILIZED SAND SHALL BE A MINIMUM OF 1.5 SK PER CUBIC YARD.
2. CEMENT STABILIZED SAND (C.S.S.) SHALL ACHIEVE A MINIMUM OF 100 PSI WITHIN 48 HOURS.
3. A MINIMUM OF 2 RANDOM SAMPLES SHALL BE TAKEN EACH WEEK. (FOR SMALLER PROJECTS, ONE SAMPLE MAY SUFFICE WITH CITY OF SUGAR LAND APPROVAL.) THE CITY OF SUGAR LAND RESERVES THE RIGHT TO REQUIRE ADDITIONAL TESTS, AT THE CONTRACTORS EXPENSE IF IT IS DEEMED NECESSARY.
4. ANY C.S.S. NOT MEETING CITY OF SUGAR LAND STANDARDS SHALL BE REMOVED AND REPLACED AT THE CONTRACTOR'S EXPENSE.
5. BOTH CEMENT CONTENT AND COMPRESSIVE TESTS SHALL BE CONDUCTED ON C.S.S. SAMPLES.
6. ALL C.S.S. SHALL BE COMPACTED IN MAXIMUM OF 8-INCH LIFTS AND REQUIRED TO REACH A MINIMUM DENSITY OF 95%.
7. REFER TO GENERAL NOTES.

BANK SAND

1. BANK SAND IS DEFINED AS A WELL-GRADED SAND, FREE OF SILT, CLAY, FRIABLE OR SOLUBLE MATERIALS AND ORGANIC MATER, MEETING THE UNIFIED SOILS CLASSIFICATIONS SYSTEM GROUP SYMBOL SW CRITERIA WITH A PLASTICITY INDEX OF LESS THAN 10. NO MORE THAN 12% OF MATERIAL CAN PASS THE No. 200 SIEVE.

HOT MIX ASPHALTIC BASE COURSE


1. NO HOT MIX ASPHALTIC BASE MAY BE INSTALLED UNTIL THE SUBGRADE HAS BEEN PROPERLY PREPARED AND TESTED AS PER THE PLANS AND SPECIFICATIONS. THE SUBGRADE SHALL BE INSPECTED AND APPROVED BY THE CITY OF SUGAR LAND BEFORE ANY BASE MATERIALS ARE INSTALLED.
2. HOT MIX ASPHALTIC BASE MATERIALS, HANDLING, AND INSTALLATION SHALL COMPLY WITH TXDOT STANDARDS FOR CONSTRUCTION OF HIGHWAYS, STREETS, AND BRIDGES 1995 (SECTION 02711) AND ITS LATEST REVISIONS.
3. HOT MIX ASPHALTIC MATERIALS SHALL BE AT TEMPERATURES BETWEEN 250°F AND 325°F, WHEN PLACED.
4. MATERIALS MAY NOT BE PLACED IN WET CONDITIONS OR IF THE AMBIENT TEMPERATURE IS BELOW 50°F AND FALLING. MATERIALS MAY BE INSTALLED IF THE AMBIENT TEMPERATURE IS TAKEN IN THE SHADE AND IS 40°F AND RISING.
5. PLACE BASE COURSES 4 INCHES OR GREATER IN THICKNESS IN TWO OR MORE LAYERS, EACH HAVING A COMPACTED THICKNESS OF NOT GREATER THAN 4 INCHES.
6. BASE MATERIAL MAY ONLY BE PLACED AGAINST CLEAN, STRAIGHT EDGES. SAW CUTTING, FULL DEPTH, IS REQUIRED IF EXISTING EDGES ARE ROUGH OR UNEVEN.
7. COMPACTION SHALL BEGIN WHILE MATERIAL IS STILL HOT AND AS SOON AS IT WILL BEAR THE ROLLER OR COMPACTOR WEIGHT WITHOUT UNDUE DISPLACEMENT OR HAIR CRACKING.
8. COMPACT SURFACE UNIFORMLY WITH ROLLERS OR TAMPERS IN LOCATIONS NOT READILY ACCESSIBLE (I.E., ALONG CURBS, WALLS, ETC.).
9. UNLESS OTHERWISE SPECIFIED, COMPACT DENSITY TO NOT LESS THAN 95% OF MAXIMUM POSSIBLE DENSITY.
10. A CERTIFIED LAB SHALL BE ON SITE AT ALL TIMES TO TEST AND PROPERLY DOCUMENT THE CONSTRUCTION METHODS AND QUALITY OF MATERIALS.
11. ALL MATERIALS AND WORKMANSHIP SHALL COMPLY TO A.S.T.M. ASPHALT INSTITUTE AND CITY OF SUGAR LAND REQUIREMENTS. FAILURE TO COMPLY WILL RESULT IN REJECTION OF SAID MATERIALS AND SUCH SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE.
12. DO NOT OPEN BASE TO TRAFFIC UNTIL IT CAN BE MAINTAINED IN GOOD CONDITION AND IS CAPABLE OF SUPPORTING VEHICLE WEIGHT WITHOUT DAMAGE OR DEGRADATION.
13. DENSITIES SHALL BE TAKEN AT A MINIMUM OF AT LEAST ONCE PER 300 LF OF DRIVE LANE OR ONCE PER 250 SQ. YD., WHICHEVER MAY APPLY AND SHALL BE STAGGERED RELATIVE TO TESTING SITES IN ABUTTING TRAFFIC LANES. FAILURE TO MEET MINIMUM REQUIREMENTS SHALL RESULT IN THE REPLACEMENT OF SAID MATERIAL AT CONTRACTOR'S EXPENSE.

ASPHALT -- OILS AND EMULSIONS

1. CONTRACTOR SHALL VERIFY LINES AND GRADES AND THAT COMPACTED BASE IS READY TO SUPPORT LOADS.
2. BASE MATERIAL SHALL BE DRY AND THOROUGHLY CLEAN OF LOOSE MATERIAL PRIOR TO APPLICATION.
3. OILS & EMULSION SHALL BE DISTRIBUTED EVENLY AND SMOOTHLY UNDER PRESSURE NECESSARY FOR PROPER DISTRIBUTION.
4. MAINTAIN REQUIRED SURFACE CONDITIONS UNTIL ACCEPTED BY THE CITY OF SUGAR LAND.
5. PRIME COAT SHALL BE M.C.-30, M.C.-70 OR E.P.R.1 PRIME AND SHALL COMPLY WITH TXDOT STANDARD SPECIFICATIONS FOR CONSTRUCTION OF HIGHWAYS, STREETS, AND BRIDGES (1993) AND ITS LATEST REVISIONS.
6. TACK COAT SHALL BE SS-1 AND SHALL COMPLY TO TXDOT, S.S.C.H.S. & B. (1993) AND ITS LATEST REVISIONS.
7. M.C.-30 AND M.C.-70 AND EPR-1 PRIME SHALL BE DISTRIBUTED AT A RATE OF .25 TO .35 GALLONS PER SQUARE YARD. AND MAY NOT BE APPLIED WHEN AMBIENT TEMPERATURE IS 50°F AND FALLING. (NOTICE: CUTBACK ASPHALTS MAY NOT BE USED DURING THE PERIOD OF APRIL 16 THROUGH SEPT. 15 AS PER ASTM D-244).
8. EPR-1 MAXIMUM WATER DILUTION IS 3 PARTS WATER TO ONE PART EPR-1.
9. SS-1 TACK COAT SHALL BE APPLIED AT A RATE NOT TO EXCEED 0.06 GAL. PER SQUARE YARD OF SURFACE AREA. CONTACT JOINTS, CURBS, ETC. SHALL BE PAINTED WITH AN EVEN THIN COAT APPLIED BY BRUSH OR BROOM. COATING MATERIAL SHALL BE HEATED TO 125°F TO 180°F WHEN APPLIED. TACK COAT MAY BE APPLIED WHEN AMBIENT TEMPERATURES ARE 40°F AND RISING. TACK COAT MAY NOT BE APPLIED IF AMBIENT AIR IS 50°F AND FALLING.

LIMING SUBGRADE

1. LIME SHALL BE A "SLURRY" AS PER TXDOT 260 UNLESS SPECIFICALLY RECOMMENDED BY THE GEOTECHNICAL ENGINEER AND APPROVED BY THE CITY ENGINEER.
2. ALL LIME SLURRIES SHALL BE FURNISHED AT OR ABOVE THE MINIMUM "DRY SOLIDS" CONTENTS AS APPROVED BY THE ENGINEER.
3. SUBGRADES SHALL BE STABILIZED WITH A MINIMUM SIX PERCENT (6%) LIME BY WEIGHT, EIGHT INCHES (8") THICK TO REDUCE PLASTICITY INDEX (PI) TO 20 OR LESS AS DETERMINED LIME SERIES.
4. LIME DRY SOLID CONTENT TESTS SHALL BE CONDUCTED ON SITE, ONCE PER ONE--HUNDRED (100) TONS OF MATERIAL DISTRIBUTED, UNLESS OTHERWISE NOTED.
5. THE SUBGRADE SHALL BE SHAPED AND GRADED TO CONFORM TO THE TYPICAL SECTIONS, AS SHOWN ON THE PLANS, PRIOR TO TREATING THE EXISTING MATERIAL.
6. UNLESS APPROVED BY THE CITY ENGINEER, LIME OPERATIONS SHALL NOT BE STARTED WHEN THE AMBIENT AIR TEMPERATURE IS BELOW 40°F. AND FALLING. LIMING MAY, WITH APPROVAL, BE STARTED WHEN THE AMBIENT AIR TEMPERATURE IS 35°F AND RISING. LIME SHALL NOT BE PLACED WHEN WEATHER CONDITIONS, IN THE ENGINEER'S OPINION, ARE UNSUITABLE.
7. THE SUBGRADE MATERIAL AND SLURRY SHALL BE THOROUGHLY MIXED, BROUGHT TO THE PROPER MOISTURE CONTENT (+ OR - 2) AND LEFT TO CURE USUALLY 3 DAYS (72 HRS.) MINIMUM AS APPROVED BY THE CITY ENGINEER.
8. AFTER CURING, THE SUBGRADE SHALL BE REMIXED UNTIL PULVERIZATION REQUIREMENTS ARE MET, AS PER TXDOT.
TEX-101-E, PART III.
PERCENT
MINIMUM PASSING 1-3/4" SIEVE.....100
MINIMUM PASSING 3/4" SIEVE.....85
9. SIEVE TESTS SHALL BE CONDUCTED EVERY 150 LF ON ALTERNATING LANES OF TRAFFIC OR EVERY 300 LF ON SINGLE LANES AS REQUIRED. AT LEAST ONE TEST SHALL BE CONDUCTED ON EACH ROADWAY OR CUL-DE-SAC.
10. THE MATERIAL SHALL BE AERATED OR MOISTENED TO + OR -2% OPTIMUM PRIOR TO COMPACTION. COMPACTION TO A MINIMUM 95% DENSITY SHALL BEGIN IMMEDIATELY AFTER ALL PULVERIZATION AND MOISTURE REQUIREMENTS ARE MET. THROUGHOUT THIS ENTIRE OPERATION, THE SURFACE SHALL BE SMOOTH AND IN CONFORMITY WITH THE LINES AND GRADES ON THE PLANS.
11. WHEN THE SUBGRADE FAILS TO MEET DENSITY REQUIREMENTS OR SHOULD IT LOSE THE REQUIRED STABILITY, DENSITY OR FINISH, IT SHALL BE REWORKED IN ACCORDANCE WITH TXDOT SUBARTICLE 260.4(7) "REWORKING A SECTION", WHICH MAY REQUIRE AN ADDITIONAL 25% OF THE SPECIFIED LIME AMOUNT.
12. THE TREATED SUBGRADE SHALL BE KEPT MOIST AND PREVENTED FROM DRYING. IN THE EVENT OF A ONE-HALF (1/2) INCH RAINFALL AND/OR IF THE MATERIAL BECOMES DRY, DENSITY AND MOISTURE TESTS SHALL BE RETAKEN.
13. NO SUBGRADE SHALL BE COVERED WITH ANOTHER MATERIAL UNLESS APPROVED BY THE CITY OF SUGAR LAND AND LIME DEPTH TESTS HAVE BEEN COMPLETED. LIME DEPTH TESTS SHALL BE CONDUCTED AT EVERY 150 LF OF ROADWAY ON ALTERNATING LANES OR EVERY 300 LF OF SINGLE LANE. AT LEAST ONE TEST SHALL BE CONDUCTED ON EACH ROADWAY AND/OR CUL-DE-SAC.

No.	DATE	REVISION
SEAL:		
_____. DATE _____		
DESIGN ENGINEER:		
		
CITY OF SUGAR LAND, TEXAS ENGINEERING DEPARTMENT		
CONSTRUCTION PLANS FOR:		
GENERAL CONSTRUCTION NOTES I		
JOB No.: DATE: DESIGNED BY: DRAWN BY: CHECKED BY: SCALE:		SL-01-06 SHEET OF

CAD FILE PATH:
PLOT DATE:

PLOT TIME:

ASPHALTIC CONCRETE PAVEMENT

- ASPHALTIC MATERIAL AND WORKMANSHIP SHALL COMPLY WITH ASTM C 33, ASTM C 131, ASTM C 136, AND TXDOT STANDARD SPECIFICATIONS FOR CONSTRUCTION OF HIGHWAYS, STREETS AND BRIDGES (1993) AND ITS LATEST REVISIONS. ASPHALT SHALL BE TYPE D-100 UNLESS SPECIFICALLY NOTED AND APPROVED BY CITY OF SUGAR LAND ENGINEER.
- CONTRACTOR SHALL VERIFY ELEVATIONS AND GRADES AND THAT BASE COURSE IS READY TO SUPPORT IMPOSED LOADS.
- APPLY A PRIME COAT AS PER CITY OF SUGAR LAND AND TXDOT STANDARDS. DO NOT APPLY TACK COAT UNTIL PRIMED BASE COURSE HAS CURED AND IS APPROVED BY THE CONSTRUCTION INSPECTOR.
- TACK COAT SHALL COMPLY TO CITY OF SUGAR LAND AND TXDOT STANDARDS.
- DO NOT USE CUTBACK ASPHALT APRIL 16 THROUGH SEPTEMBER 15.
- DO NOT PLACE ASPHALT WHEN AMBIENT TEMPERATURE IS BELOW 50°F AND FALLING. MIXTURE MAY BE PLACED WHEN AMBIENT TEMPERATURE IS 40°F AND RISING.
- ON PUBLIC ROADS, STREETS, AND RIGHT-OF-WAY, ASPHALT SHALL BE PLACED IN MAXIMUM 2-INCH LIFTS. IN THE EVENT MORE THAN ONE LIFT IS REQUIRED, EACH LIFT SHALL BE COMPACTED, TESTED, AND GIVEN ADEQUATE TIME FOR THE PREVIOUS LIFT TO CURE AND DRY BEFORE THE NEXT LIFT IS PLACED. IF COMPLETELY CURED AND DRIED, A TACK COAT WILL BE REQUIRED BETWEEN LIFTS.
- A CERTIFIED LAB SHALL BE ON SITE AT ALL TIMES TO TEST AND PROPERLY DOCUMENT THE CONSTRUCTION METHODS AND QUALITY OF MATERIALS.
- ROLLING PATTERNS SHALL BE ESTABLISHED BY THE CONTRACTOR, AS RECOMMENDED BY THE LAB, TO ACHIEVE THE MAXIMUM COMPACTION. THE SELECTED ROLL PATTERN SHALL BE FOLLOWED UNLESS CHANGES IN THE PLACEMENT OR MIXTURE OCCUR, WHICH AFFECT COMPACTION. COMPACTION OF 95% SHALL BE ACHIEVED.
- ASPHALT SHALL NOT BE PLACED ON WET BASE.
- NO "BIRDBATHS" ARE ALLOWED.
- IF THE SURFACE RAVELS (SEPARATES), FLUSHES, RUTS, OR DETERIORATES IN ANY MANNER PRIOR TO FINAL ACCEPTANCE, THE CONTRACTOR WILL CORRECT THIS CONDITION AT HIS EXPENSE TO THE SATISFACTION OF THE CITY OF SUGAR LAND ENGINEER.
- THE CONTRACTOR SHALL PROTECT THE PAVEMENT UNTIL DIRECTED BY THE CITY ENGINEER TO OPEN SAID PAVEMENT TO TRAFFIC.
- RIDE QUALITY SHALL COMPLY WITH TXDOT ITEM 585, "RIDE QUALITY FOR PAVEMENT SURFACES".
- SPECIAL NOTE: CONTRACTOR, WHILE MAXIMIZING COMPACTION, SHALL USE CAUTION NOT TO "OVER-ROLL" ASPHALT. PAVEMENT STRETCHED OR OVER-ROLLED, WHERE COMPACTION IS BROKEN, SHALL NOT BE ACCEPTED AND SHALL BE REPAIRED OR REPLACED TO THE CITY ENGINEER'S SATISFACTION AT THE CONTRACTOR'S EXPENSE.
- CORE SAMPLES SHALL BE TAKEN RANDOMLY AT A MINIMUM OF EVERY 300 LF PER LANE OF ROADWAY OR ONE PER EVERY 250 SQ. YD., WHICHEVER IS APPLICABLE AND SHALL BE STAGGERED RELATIVE TO TESTING SITES IN ABUTTING TRAFFIC LANES.
- ALL ASPHALTIC CONCRETE PAVEMENT REPAIRS SHALL BE SAW CUT TO FULL ASPHALT DEPTH. REFER TO ASPHALT, STABILIZED BASE, FLEXIBLE BASE, ASPHALT BASE, AND OIL AND EMULSION NOTES. ALL DAMAGED BASE AND SUBGRADES SHALL BE REMOVED AND REPLACED TO THE CITY ENGINEER'S SATISFACTION, AT THE CONTRACTOR'S EXPENSE. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY AREA DAMAGED DURING CONSTRUCTION, INCLUDING AREAS OUTSIDE THE DESIGNATED REPAIR.

STABILIZED CRUSHED CONCRETE

- TEST AND ANALYSIS OF AGGREGATE AND BINDER MATERIALS WILL BE PERFORMED IN ACCORDANCE WITH ASTM D 1557 AND ASTM D 4318. CEMENT SHALL BE ASTM C 150 TYPE I.
- ALL MATERIALS AND WORKMANSHIP SHALL COMPLY WITH TXDOT STANDARD SPECIFICATIONS FOR CONSTRUCTION OF HIGHWAYS, STREETS AND BRIDGES (1993) AND ITS LATEST REVISIONS AND CITY OF SUGAR LAND STANDARDS.
- PRIME COAT SHALL BE M.C. 30 OR EPR-1 PRIME.
- DESIGN MIX FOR MINIMUM AVERAGE COMPRESSIVE STRENGTH OF 200 PSI IN 48 HRS. PROVIDE MINIMUM CEMENT CONTENT OF 2 SK PER TON OF MIX. CEMENT CONTENT MAY BE RAISED AT THE CONTRACTOR'S EXPENSE IF TESTS ON FIELD SAMPLES FALL BELOW 200 PSI.
- THREE SAMPLES SHALL BE MOLDED EACH DAY FOR EACH 300 TONS OF PRODUCTION. COMPRESSIVE STRENGTH SHALL BE THE AVERAGE OF THREE TESTS FOR EACH PRODUCTION LOT. CONTRACTOR SHALL REPLACE, AT HIS OWN EXPENSE, ANY MATERIAL BELOW MINIMUM REQUIREMENTS.
- CONTRACTOR SHALL VERIFY LINES, GRADES, AND COMPACTED SUBGRADING AS READY TO RECEIVE MATERIALS PRIOR TO ITS PLACEMENT.
- CEMENT STABILIZED BASE MAY NOT BE PLACED IF AMBIENT TEMPERATURE IS 40°F AND FALLING. BASE MATERIAL MAY BE PLACED IF AMBIENT TEMPERATURE IS 35°F AND RISING.
- MATERIAL MAY NOT BE PLACED IN LIFTS EXCEEDING 6 INCHES IN DEPTH. EACH LIFT SHALL HAVE DENSITIES TAKEN.
- CEMENT STABILIZED BASE MAY NOT BE STORED FOR LONG PERIODS. DELIVERY OF MATERIAL AND UTILIZATION SHOULD BE TIMED ACCORDINGLY. MAXIMUM TIME ALLOWED 3 HRS. FROM BATCH TIME TO HAVING BEEN INSTALLED.
- CEMENT STABILIZED BASE SHALL NOT BE INSTALLED IN WET OR SOFT AREAS.
- COMPACT TO MINIMUM DENSITY OF 95% OF MAXIMUM DRY DENSITY. UNLESS OTHERWISE INDICATED ON DRAWINGS, MOISTURE SHALL BE BETWEEN + OR -2% OPTIMUM AS DETERMINED BY ASTM D 698.
- AFTER COMPACTING FINAL COURSE, BLADE SURFACE TO FINAL GRADE. ANY IRREGULARITIES, WEAK SPOTS, AREAS OF EXCESSIVE WETNESS, OR SURFACE HAIR LINE CRACKING SHALL BE REPAIRED AND/OR REPLACED AT CONTRACTOR'S EXPENSE.
- A CERTIFIED LAB SHALL BE ON SITE AT ALL TIMES TO TEST AND PROPERLY DOCUMENT THE CONSTRUCTION METHODS AND QUALITY OF MATERIALS.
- COMPACTION TESTING WILL BE PERFORMED IN ACCORDANCE WITH ASTM D 1556 OR ASTM D 2922 AND ASTM D 3017 AT RANDOMLY SELECTED LOCATIONS AS DIRECTED BY CITY OF SUGAR LAND CONSTRUCTION INSPECTOR.
- A MINIMUM OF ONE CORE SHALL BE TAKEN AT RANDOM LOCATIONS PER 300 LF PER LANE OF ROADWAY OR ONE PER 250 SQ. YD., WHICHEVER MAY APPLY AND SHALL BE STAGGERED RELATIVE TO TESTING SITES IN ABUTTING TRAFFIC LANES.
- CURE FOR A MINIMUM OF 7 DAYS BEFORE ADDING ASPHALT PAVEMENT COURSES.
- COVER SURFACE WITH CURING MEMBRANES AT THE FOLLOWING RATES: MC-30;.01 GAL. PER SQ. YD., OR EPR-1 PRIME;.15 GAL. PER SQ. YD. DO NOT USE CUTBACK ASPHALT APRIL 16 TO SEPTEMBER 15. PROTECT THE MEMBRANE BY ALLOWING MEMBRANE TO FULLY CURE PRIOR TO PERMITTING TRAFFIC TO DRIVE ON IT.

- UNSTABILIZED CRUSHED CONCRETE MAY NOT BE USED ON PUBLIC STREETS, ROADS, OR RIGHTS-OF-WAY.
 - STABILIZED LIMESTONE BASE MAY BE SUBSTITUTED FOR STABILIZED CRUSHED CONCRETE IF SUBMITTED AND APPROVED BY CITY ENGINEER.
- STORM SEWER NOTES
- STORM SEWERS SHALL BE DESIGNED AND CONSTRUCTED WITH CITY OF SUGAR LAND'S STANDARD CONSTRUCTION SPECIFICATIONS AND IN ACCORDANCE WITH CITY OF SUGAR LAND STANDARD DETAILS SHEET AND LATEST REVISIONS.
 - ALL PIPE STORM SEWERS SHALL BE INSTALLED, BEDDED, AND BACKFILLED IN ACCORDANCE WITH CITY OF SUGAR LAND STANDARD DETAIL DRAWINGS.
 - ALL CEMENT STABILIZED SAND (C.S.S.) SHALL BE 1-1/2 SK PER CUBIC YD. AND MEET MINIMUM C.S.S. STANDARDS COMPACTED TO 95%.
 - ALL STORM SEWERS UNDER AND WITHIN TWO (2) FOOT OF PROPOSED OR FUTURE PAVEMENTS SHALL BE BACKFILLED AND COMPACTED WITH 1-1/2 SK C.S.S. TO BOTTOM OF SUBGRADE.
 - ALL PROPOSED PIPE STUB-OUTS FROM MANHOLES ON INLETS ARE TO BE PLUGGED WITH 8" BRICK WALLS WITH FULL MORTAR HEAD AND BED JOINTS AND GROUTED WITH A MINIMUM OF 1/2-INCH NON-SHRINK GROUT INSIDE AND OUTSIDE, UNLESS OTHERWISE NOTED.
 - AVOID TO MAXIMUM EXTENT, MANHOLES IN HANDICAP RAMPS.
 - ALL STORM SEWER MANHOLES SHALL BE OF SUGAR LAND TYPE "C" UNLESS OTHERWISE NOTED AND SHALL BE LOCATED A MINIMUM OF THREE (3) FEET BACK OF CURB. IF CONFLICT EXISTS, RACK OVER MANHOLE TO MISS PROPOSED CURB. (MAXIMUM RACK OF 1-INCH PER COURSE OF BRICK.)
 - RIM ELEVATIONS SHOWN ON THE PLANS ARE APPROXIMATE ONLY. UTILITY CONTRACTOR SHALL ADJUST RIM ELEVATIONS TO 0.4 FEET ABOVE THE FINISH GRADE AT EACH LOCATION AFTER CONTRACTOR HAS COMPLETED FINAL GRADING. SLOPED FILL SHALL BE ADDED FOR STORM WATER DRAINAGE AWAY FROM RIM.
 - RIM ELEVATIONS SHALL BE PROPERLY ADJUSTED TO GRADE IN PAVEMENT AND SIDEWALKS. APPROVED BLOCKOUTS SHALL BE USED IN PAVEMENT.
 - ALL STORM SEWER MANHOLE COVERS MUST INCLUDE "STORM SEWER" AND "DUMP NO WASTE", "DRAINS TO WATERWAYS" WITH CITY OF SUGAR LAND EMBLEM AS DEPICTED IN THE DETAIL SHEETS.
 - MINIMUM STORM SEWER SIZE SHALL BE 24-INCH DIAMETER. ALL STORM SEWER PIPES 24" AND LARGER ARE TO BE REINFORCED CONCRETE PIPE ASTM C-76 CLASS III, INCLUDING INLET LEADS CROSSING UNDER EXISTING OR PROPOSED PAVEMENTS. ALL INLET LEADS SHALL BE 24" R.C.P. OR LARGER. ALL STORM SEWER PIPE SHALL BE RUBBER GASKETED. ALL CMP PIPE SHALL BE IN ACCORDANCE WITH C.O.S.L. APPROVED PRODUCT LIST AND STANDARD DETAILS.
 - CONTRACTOR SHALL VERIFY NATURAL GROUND SHOTS PRIOR TO MANHOLE CONSTRUCTION.
 - CONTRACTOR TO PROVIDE A MINIMUM OF 6-INCHES CLEARANCE AT UTILITY CROSSINGS AND A MINIMUM OF TWELVE (12) INCHES AT SANITARY SEWER CROSSING.
 - THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING, MAINTAINING, AND RESTORING ANY

- ALL DITCHES SHALL BE RESTORED TO PROPOSED ELEVATIONS TO INSURE PROPER DRAINAGE. ALL OUTFALLS SHALL BE COMPACTED AND ALL DISTURBED AREAS SHALL BE RESEEDED OR RESODDED WITHIN 10 WORKING DAYS OF EACH OCCURRENCE (NO SEPARATE PAY).
- THE UTILITY CONTRACTOR SHALL ROUGH CUT ALL ROADSIDE SWALES IN PROPER ALIGNMENT AND SLOPE TO WITHIN 0.2 FT. OF FINISH GRADE. THE PAVING CONTRACTOR, UPON COMPLETION OF PAVING, SHALL COMPLETE FINAL GRADING ALIGNMENT OF SWALES AND RESTORE ALL AREAS WITHIN RIGHT-OF-WAY FOR SEEDING OR SODDING AND FERTILIZATION.
- REFER TO GENERAL NOTES AND C.S.S. NOTES.


SANITARY SEWER NOTES

- SANITARY SEWERS, FORCE MAINS, MANHOLES, LIFT STATIONS AND WASTEWATER TREATMENT PLANTS SHALL BE DESIGNED AND CONSTRUCTED AS PER THE REQUIREMENTS OF THE CITY OF SUGAR LAND DESIGN STANDARDS AND CORRESPONDING STANDARD CONSTRUCTION DETAILS SHEETS AND AS PER THE REQUIREMENTS OF THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY "DESIGN CRITERIA FOR SEWERAGE SYSTEMS". SHOULD A CONFLICT ARISE BETWEEN INFORMATION DEPICTED ON APPROVED CONSTRUCTION DRAWINGS AND/OR INFORMATION INCLUDED IN PROJECT SPECIFICATIONS, CITY OF SUGAR LAND DESIGN STANDARDS SHALL GOVERN.
- ALL MATERIALS AND PRODUCTS USED IN THE CONSTRUCTION OF SANITARY SEWERS, FORCE MAINS, MANHOLES, LIFT STATIONS AND WASTEWATER TREATMENT PLANTS SHALL COMPLY WITH THE CITY OF SUGAR LAND DESIGN STANDARDS AND THE CURRENT APPROVED PRODUCTS LIST.
- STACKS SHALL BE BUILT IN ACCORDANCE WITH THE CITY OF SUGAR LAND STANDARD DETAIL DRAWING REQUIREMENTS. EXACT LOCATION OF THE STACK SHALL BE SUPPLIED TO THE CITY ENGINEER OF SUGAR LAND BY THE PROJECT ENGINEER ON SEALED AS-BUILT DRAWINGS AT COMPLETION OF CONSTRUCTION. ALL STACKS SHALL BE INSTALLED WITHIN 3% OF PLUMB RELATIVE TO VERTICAL PLANE AND WILL BE CAPPED AND TERMINATED AT A DEPTH OF 4 FEET BELOW FINISHED GRADE, UNLESS OTHERWISE DIRECTED BY THE CITY ENGINEER.
- EACH SANITARY SEWER SERVICE LEAD STUB, PLUGGED WYE BRANCH OUTLET AND STACK SHALL BE MARKED IN ACCORDANCE WITH THE DETAILS AT THE TIME OF CONSTRUCTION, BEGINNING AT THE INVERT ELEVATION OF THE STUB OR WYE AND AT AN ELEVATION TWO FEET BELOW THE CAPPED TERMINATION POINT OF THE STACK AND EXTENDING TWO FEET ABOVE FINISHED GRADE.
- SANITARY SEWER MANHOLES SHALL BE CONSTRUCTED AS PER DRAWINGS INCORPORATED IN CITY OF SUGAR LAND STANDARD CONSTRUCTION DETAILS SHEETS. SUCH MANHOLES SHALL BE CONSTRUCTED A MINIMUM OF ONE FOOT FROM BACK OF CURB ON CURB AND GUTTER ROADWAYS AND THREE FEET FROM EDGE OF TRAVELLED ROADWAY ON THOSE THOROUGHFARES HAVING NO CURBING, MEASURED FROM OUTSIDE DIAMETER OF MANHOLE. ALL SANITARY SEWER MANHOLES SHALL INCORPORATE INFLOW PROTECTORS. SANITARY SEWER MANHOLES SHALL NOT BE INSTALLED BENEATH STREET PAVING EXCEPT WHERE SPECIFICALLY AUTHORIZED BY CITY ENGINEER AND SO DESIGNATED ON APPROVED CONSTRUCTION DRAWINGS. BRICK MANHOLES AND FIBERGLASS MANHOLES ARE PROHIBITED. MANHOLES DEEPER THAN EIGHT FEET SHALL HAVE ECCENTRIC CONES.
- SANITARY SEWER MANHOLE COVERS SHALL BE MINIMUM OF 32 INCHES IN DIAMETER. ALL SUCH MANHOLE COVERS SHALL HAVE THE CITY OF SUGAR LAND EMBLEM AND THE WORDS "SUGAR LAND" AND "SANITARY SEWER" CAST IN RAISED RELIEF AS DEPICTED IN CITY OF SUGAR LAND STANDARD CONSTRUCTION DETAILS SHEETS.
- MANHOLE RIM ELEVATIONS SHOWN ON PLANS ARE APPROXIMATE ONLY. UTILITY CONTRACTORS SHALL ADJUST RIM ELEVATIONS TO 0.4 FEET ABOVE FINISHED GRADE, AND 0.5 FEET ABOVE NATURAL GROUND WITHIN RIGHTS-OF-WAY AND EASEMENTS AT EACH MANHOLE LOCATION AFTER PAVEMENT CONTRACTOR HAS COMPLETED FINAL GRADING. THE AREA ADJACENT TO SANITARY SEWER MANHOLE LOCATIONS SHALL BE GRADED AWAY FROM SUCH MANHOLES SO AS PREVENT ENTRY OF STORM WATER RUNOFF TO THE SANITARY SEWER SYSTEM.

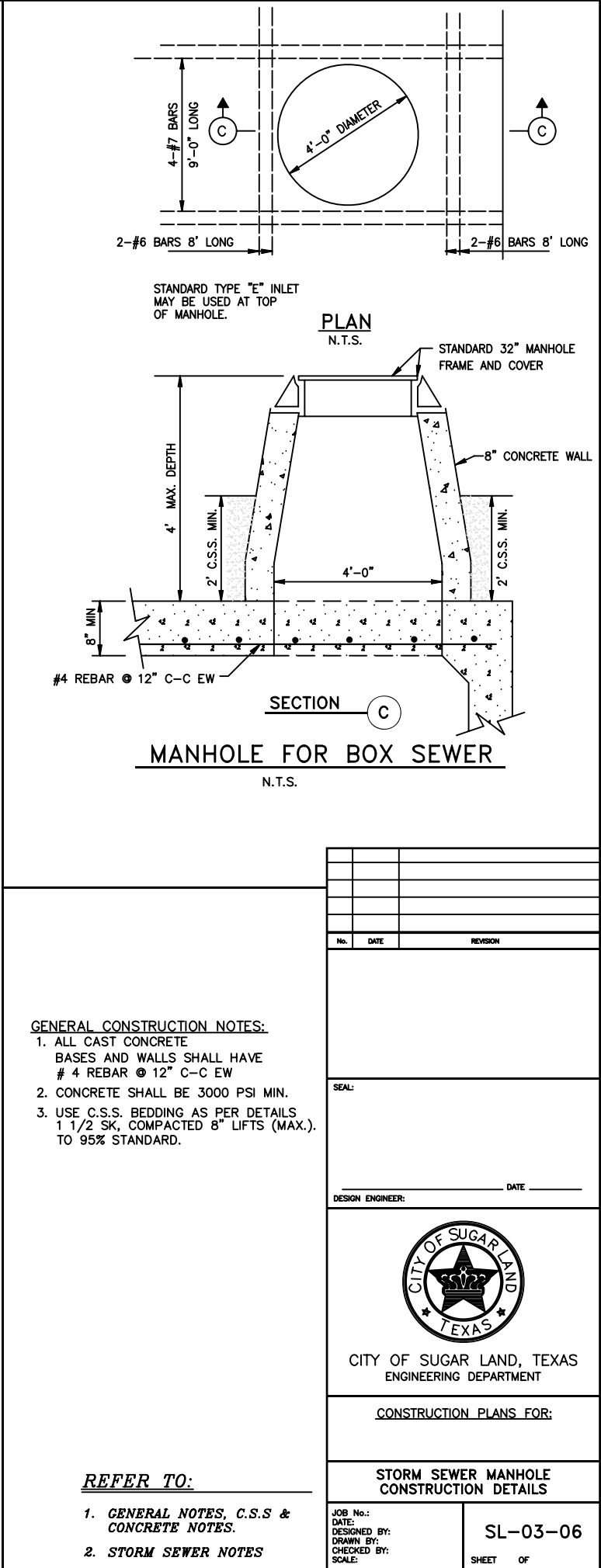
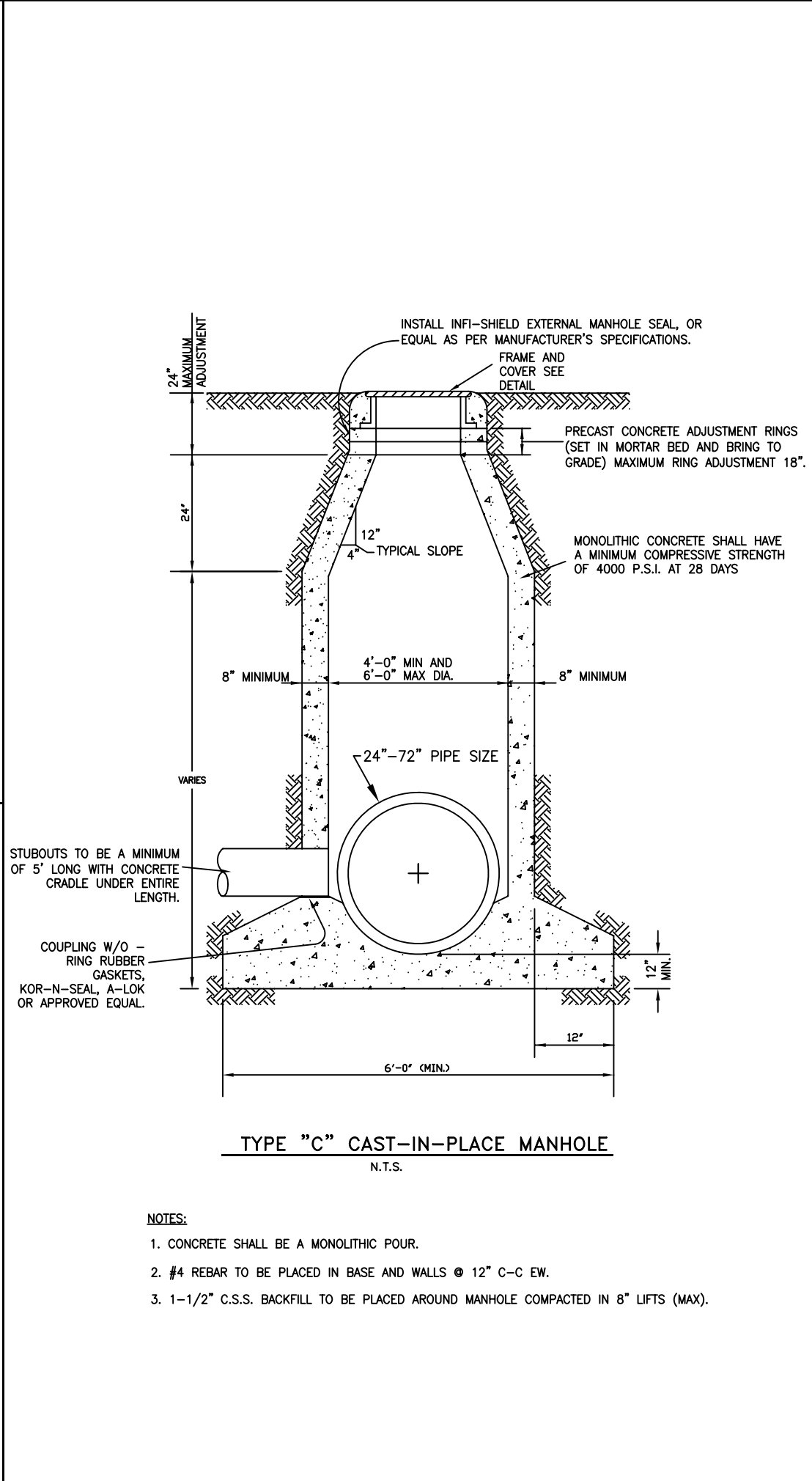
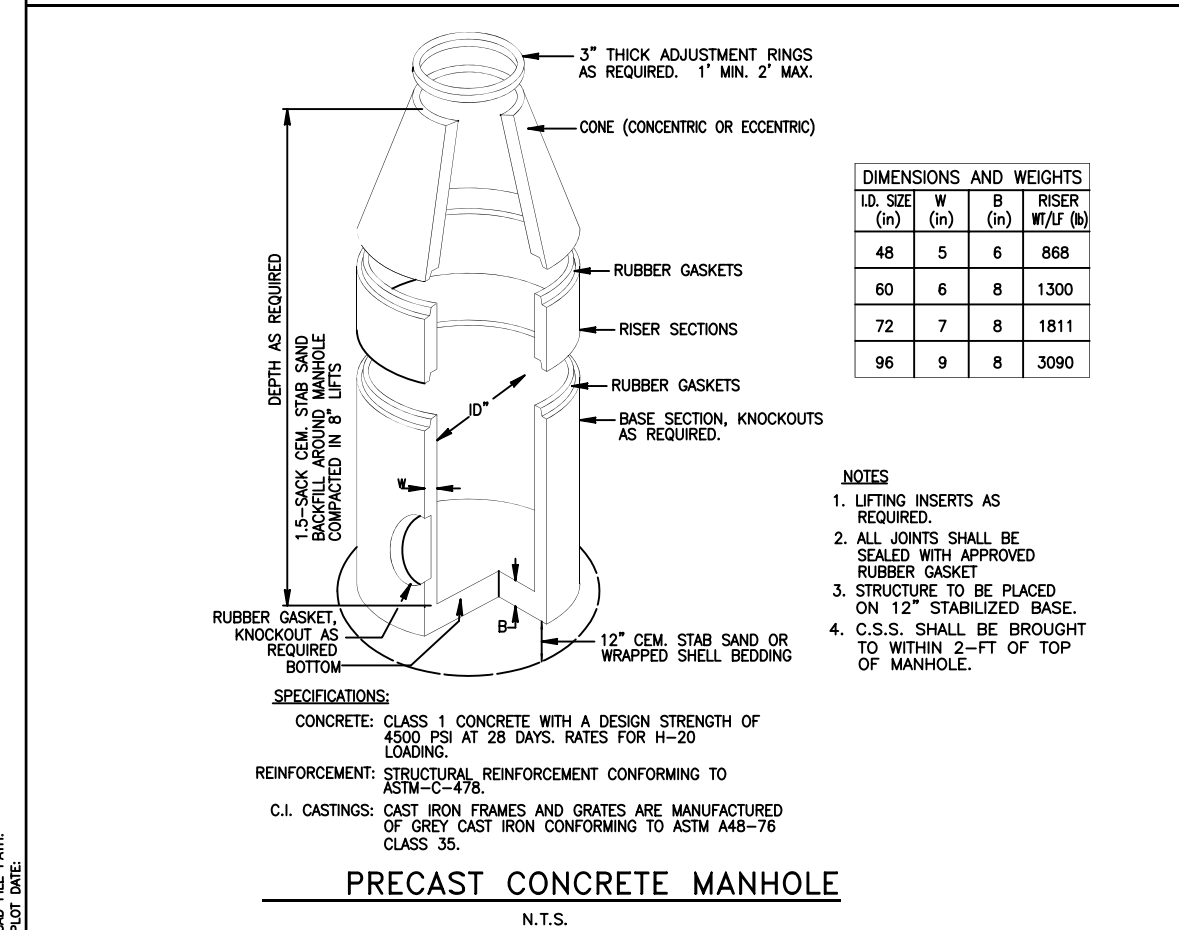
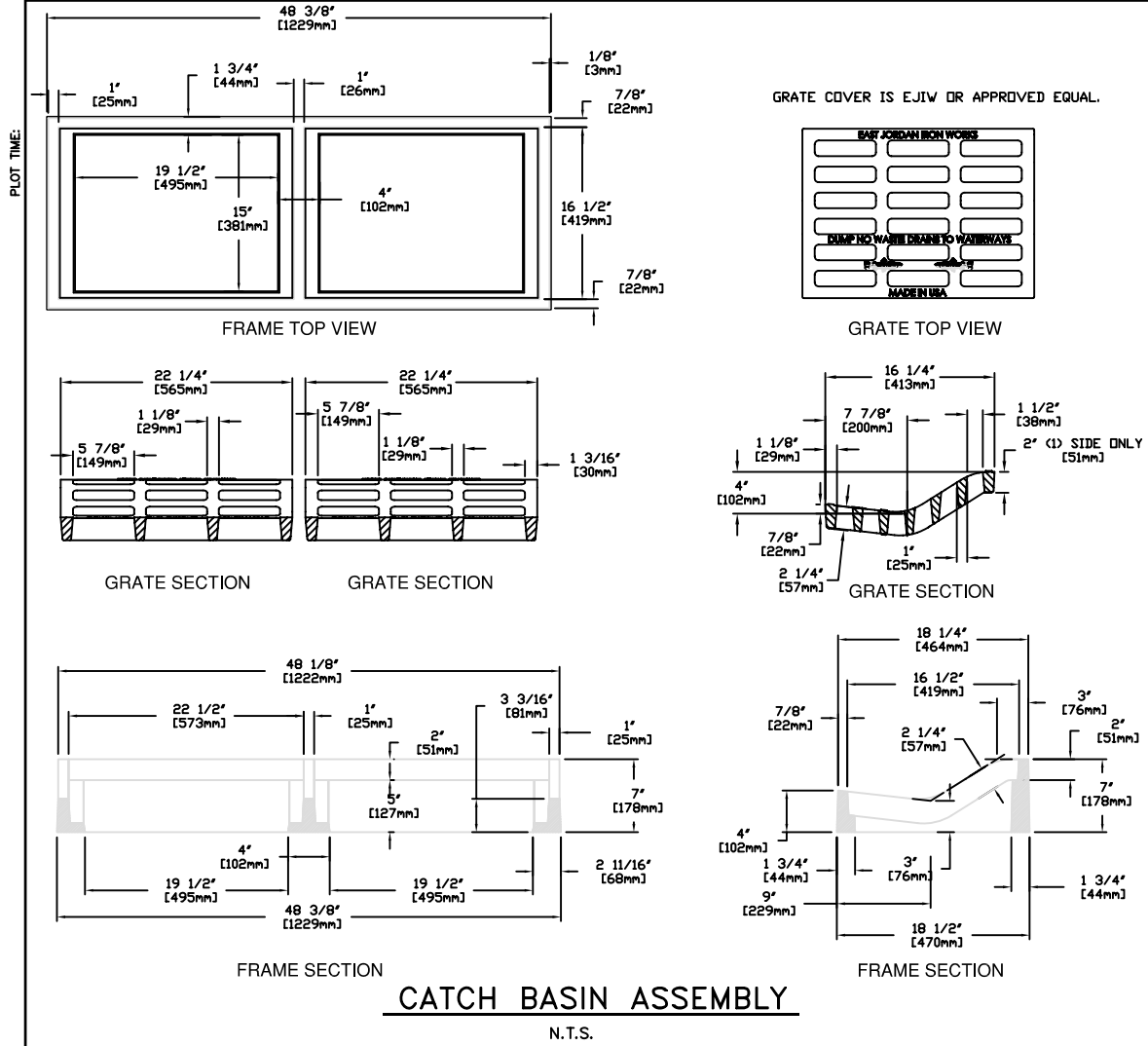
- MINIMUM SEPARATION DISTANCES AS REQUIRED BY TCEQ SECTION 317.13, APPENDIX E MUST BE MAINTAINED BETWEEN POTABLE WATER LINES AND SANITARY SEWERS, FORCE MAINS, MANHOLES, LIFT STATIONS AND WASTEWATER TREATMENT PLANTS. INSTALLATION OF FIRE HYDRANTS WITHIN NINE FEET OF A SANITARY SEWER SYSTEM IS PROHIBITED. REFER TO THE CITY OF SUGAR LAND INFRASTRUCTURE STANDARDS AND CORRESPONDING STANDARD CONSTRUCTION DETAILS SHEETS FOR CONSTRUCTION REQUIREMENTS OF OTHER INSTALLATIONS WHERE SEPARATION DISTANCES OF GREATER THAN NINE FEET CANNOT BE MAINTAINED.
- TESTING OF SANITARY SEWERS, FORCE MAINS, MANHOLES, LIFT STATIONS AND WASTEWATER TREATMENT PLANTS SHALL BE CONDUCTED AS NOTED IN SANITARY SEWER CHAPTER OF THE CITY OF SUGAR LAND DESIGN STANDARDS AND AS PER THE REQUIREMENTS OF THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY "DESIGN CRITERIA FOR SEWERAGE SYSTEMS".
- CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING LOCATION OF ALL EXISTING UTILITIES PRIOR TO EXCAVATION. DURING THE COURSE OF ANY AND ALL CLEARING, GRUBBING, FILL, GRADING, EXCAVATION OR OTHER CONSTRUCTION, CONTRACTOR SHALL ENSURE THAT STORM DRAINAGE PATHWAYS ARE MAINTAINED AND REMAIN OPEN TO ENSURE POSITIVE DRAINAGE AND THAT SUCH CONVEYANCES ARE NOT IMPEDED OR BLOCKED IN ANY WAY. STORM SEWER INLETS SHALL BE PROTECTED FROM ENTRY OF SILT, TRASH, DEBRIS AND ANY SUBSTANCES DELETERIOUS TO THE STORM SEWER SYSTEM AND/OR WATERWAYS RECEIVING STORM WATER RUNOFF. CONTRACTOR SHALL AT COMPLETION OF WORK, FILL LOW SPOTS AND GRADE ALL RIGHTS-OF-WAY AND UTILITY EASEMENTS AND REGRADE/RESTORE DITCHES AS NECESSARY TO MAINTAIN AND/OR ESTABLISH POSITIVE DRAINAGE.
- ALL SANITARY SEWER PIPING AND BEDDING SHALL BE INSPECTED BY CITY CONSTRUCTION INSPECTOR FOR CONFORMANCE WITH CITY DESIGN STANDARDS PRIOR TO BACKFILLING OF PIPING IN TRENCH. CONTRACTOR SHALL NOT COVER PIPING UNTIL SUCH TIME AS INSPECTOR HAS NOTIFIED CONTRACTOR THAT RESULTS OF PIPING INSPECTION ARE SATISFACTORY AND THAT BACKFILLING MAY BE ACCOMPLISHED. ANY PIPING INSTALLED AND/OR BACKFILLED WITHOUT INSPECTOR'S SPECIFIC APPROVAL SHALL BE UNCOVERED AT INSPECTOR'S DIRECTION AND INSPECTED ACCORDINGLY. CONTRACTOR SHALL NOTIFY INSPECTOR 24-HOURS PRIOR TO INSPECTION.

WATER DISTRIBUTION NOTES

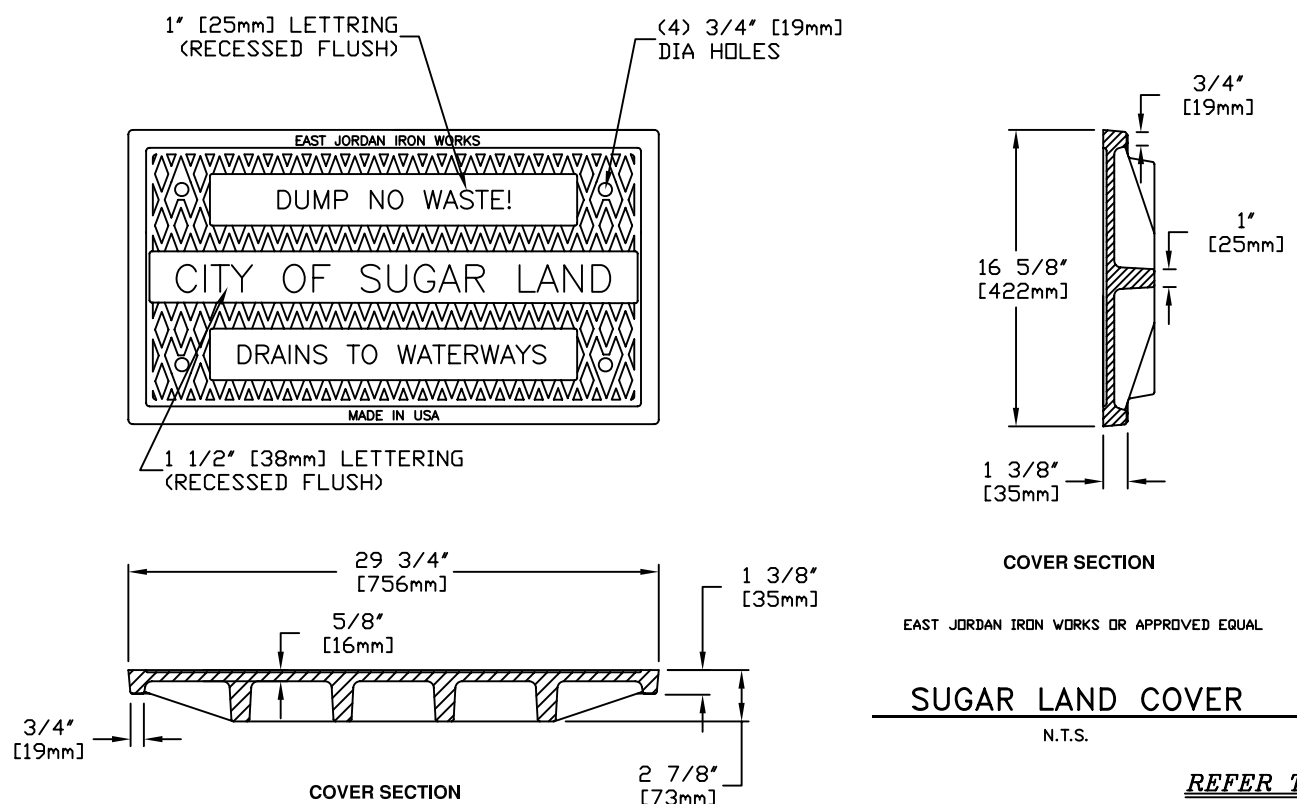
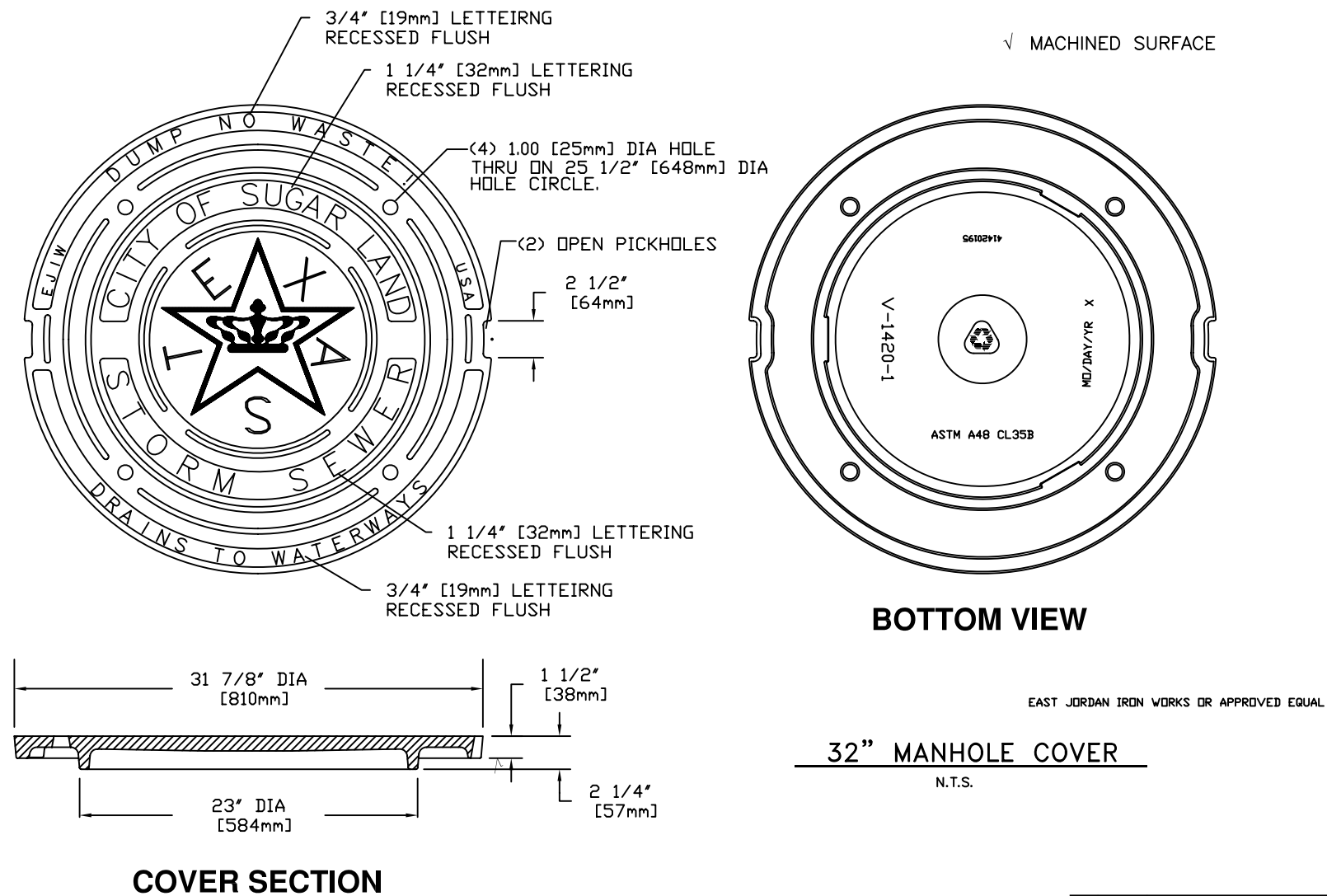
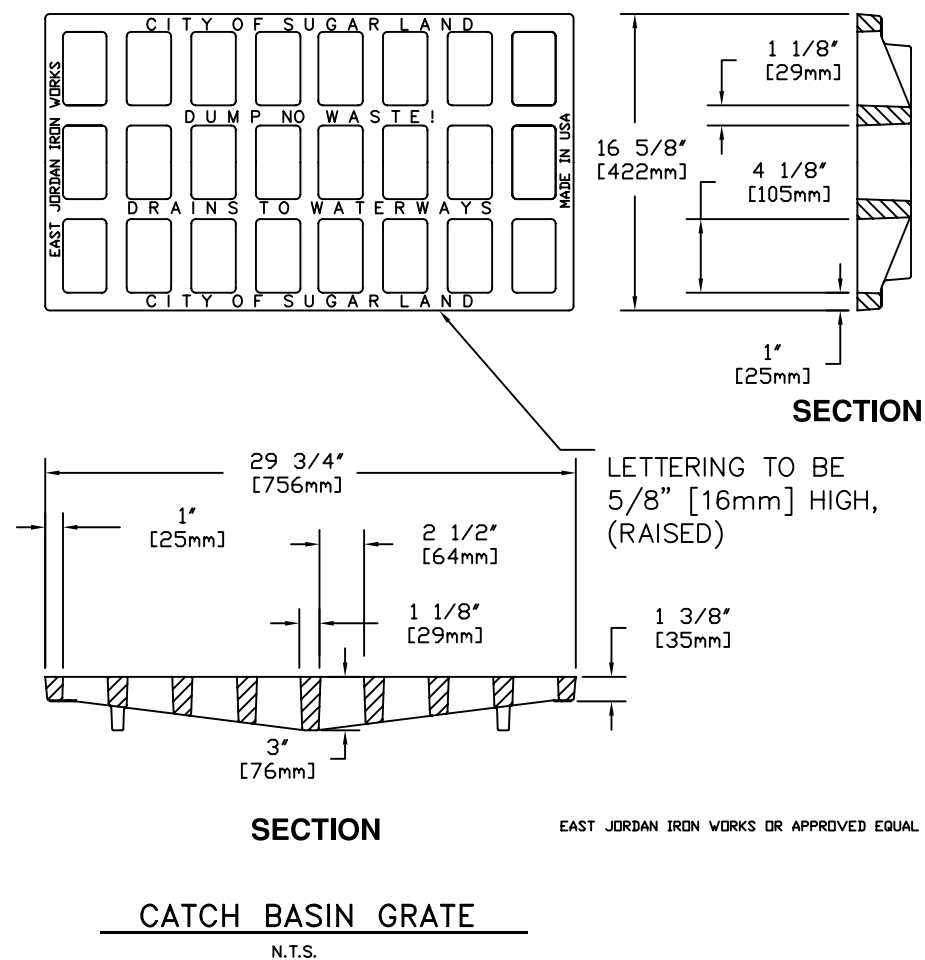
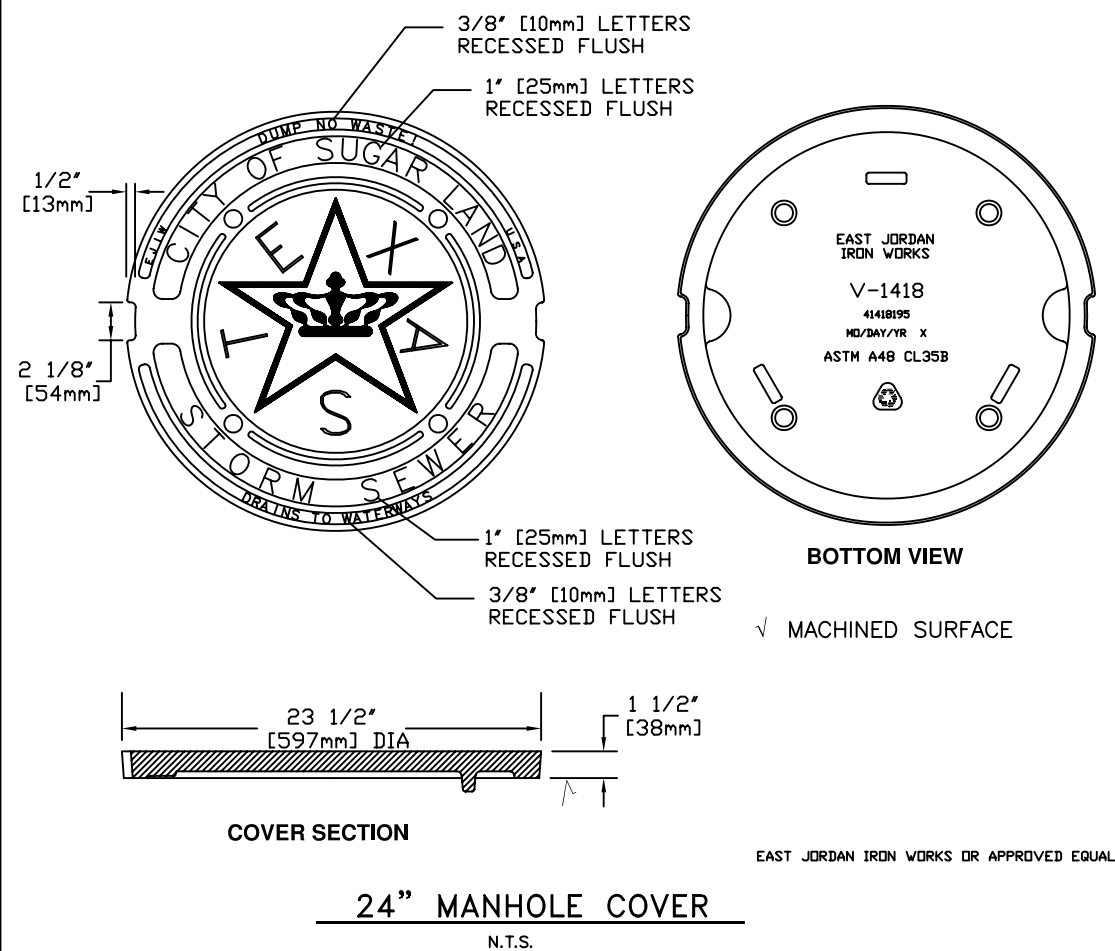
- WATER MAINS, WATER SERVICE LINES AND ASSOCIATED APPURTENANCES SHALL BE DESIGNED AND CONSTRUCTED AS PER REQUIREMENTS OF THE CITY OF SUGAR LAND DESIGN STANDARDS AND CORRESPONDING STANDARD CONSTRUCTION DETAILS SHEETS AND AS PER THE REQUIREMENTS OF THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY. SHOULD A CONFLICT ARISE BETWEEN INFORMATION DEPICTED ON APPROVED CONSTRUCTION DRAWINGS AND/OR INFORMATION INCLUDED IN PROJECT SPECIFICATIONS, CITY OF SUGAR LAND DESIGN STANDARDS SHALL GOVERN.
- ALL MATERIALS AND PRODUCTS USED IN THE CONSTRUCTION OF WATER MAINS, WATER SERVICE LINES AND ASSOCIATED APPURTENANCES SHALL COMPLY WITH THE CITY OF SUGAR LAND DESIGN STANDARDS AND THE CURRENT APPROVED PRODUCTS LIST AS MAINTAINED BY THE CITY'S ENGINEERING DEPARTMENT.
- ALL GATE VALVES INSTALLED BELOW GRADE SHALL BE OF NON-RISING STEM DESIGN.
- ALL FIRE HYDRANTS SHALL BE PAINTED AND/OR REPAINTED WITH GEO-361 POLYURETHANE ENAMEL MANUFACTURED BY GEO-GLEN ENTERPRISES, INC. SURFACE PREPARATION SHALL INCLUDE REMOVAL OF OIL, GREASE AND MOISTURE, FOLLOWED BY MEDIA BLASTING TO SSPC-SP15-10-63 SPECIFICATIONS (NEAR WHITE METAL) AS PER MANUFACTURER'S RECOMMENDATIONS. PRIME BARE METAL WITH TP-251 EPOXY PRIMER EPOXY PRIMER OR WITH TP-221, TP-231 OR TP-241 UNIVERSAL PRIMER. 80°F AND 50% RELATIVE HUMIDITY ARE OPTIMAL CONDITIONS FOR APPLICATION OF PRIMER AND OF PAINT. DO NOT APPLY PRIMER AND/OR PAINT WHEN SURFACE TO BE PAINTED IS LESS THAN 5' ABOVE THE DEW POINT IN ORDER TO PREVENT MOISTURE FROM CONDENSING ON THE SURFACE TO BE PRIMED AND/OR PAINTED.
- WELDED STEEL PIPE SHALL BE INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS OF THE CITY OF SUGAR LAND DESIGN STANDARDS. CUTS, WELDS AND COATING APPLICATIONS MUST BE ACCOMPLISHED UNDER CONTROLLED CONDITIONS AT THE PLACE OF FABRICATION PRIOR TO DELIVERY AT THE JOB SITE. APPLICATION OF COATING AT THE JOB SITE IS RESTRICTED TO TO MINOR TOUCH-UP REPAIRS AND/OR DAMAGED COATINGS ON EXTERIOR PIPE SURFACES.
- MINIMUM SEPARATION DISTANCES AS REQUIRED BY TCEQ SECTION 317.13, 290. APPENDIX E MUST BE MAINTAINED BETWEEN POTABLE WATER LINES AND SANITARY SEWERS, FORCE MAINS, LIFT STATIONS AND WASTEWATER TREATMENT PLANTS. INSTALLATION OF FIRE HYDRANTS WITHIN 9' (FT) OF A SANITARY SEWER SYSTEM IS PROHIBITED. REFER TO C.O.S.L. STANDARDS FOR CONSTRUCTION REQUIREMENTS OF OTHER INSTALLATIONS WHERE DISTANCES ARE GREATER THAN 9' (NINE) FT. CANNOT BE MAINTAINED.
- EACH WATER SERVICE LEAD STUB SHALL BE MARKED WITH A PRESSURE TREATED 4 X 4 TIMBER OR PVC PIPE AT THE TIME OF CONSTRUCTION, BEGINNING AT THE INVERT ELEVATION OF THE STUB AND EXTENDING TWO FEET ABOVE FINISHED GRADE. EACH TIMBER MARKER SHALL BE PAINTED BLUE AND LABELED "POTABLE WATER" WITH PIPE SIZE NOTED.
- TESTING OF WATER MAINS, WATER SERVICE LINES AND ASSOCIATED APPURTENANCES SHALL BE CONDUCTED AS PER REQUIREMENTS OF AWWA C605-94.
- DISINFECTION OF WATER MAINS, WATER SERVICE LINES AND ASSOCIATED APPURTENANCES SHALL BE CONDUCTED AS PER REQUIREMENTS OF AWWA C651 AND TCEQ. NO CONNECTIONS SHALL BE MADE TO EXISTING WATER LINES UNTIL NEWLY CONSTRUCTED WATER LINES HAVE BEEN THOROUGHLY DISINFECTED, TESTED, FLUSHED, AND SAMPLED AND CONNECTION HAS BEEN AUTHORIZED BY THE CITY ENGINEER.
- CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING LOCATION OF ALL EXISTING UTILITIES PRIOR TO EXCAVATION. DURING THE COURSE OF ANY AND ALL CLEARING, GRUBBING, FILL, GRADING, EXCAVATION OR OTHER CONSTRUCTION, CONTRACTOR SHALL ENSURE THAT STORM DRAINAGE PATHWAYS ARE MAINTAINED AND REMAIN OPEN TO ENSURE POSITIVE DRAINAGE AND THAT SUCH CONVEYANCES ARE NOT IMPEDED OR BLOCKED IN ANY WAY. STORM SEWER INLETS SHALL BE PROTECTED FROM ENTRY OF SILT, TRASH, DEBRIS AND ANY SUBSTANCES DELETERIOUS TO THE STORM SEWER SYSTEM AND/OR WATERWAYS RECEIVING STORM WATER RUNOFF. CONTRACTOR SHALL AT COMPLETION OF WORK, FILL LOW SPOTS AND GRADE ALL RIGHTS-OF-WAY AND UTILITY EASEMENTS AND REGRADE/RESTORE DITCHES AS NECESSARY TO MAINTAIN AND/OR ESTABLISH POSITIVE DRAINAGE.
- ALL WATER PIPING AND BEDDING SHALL BE INSPECTED BY THE CITY INSPECTOR FOR CONFORMANCE TO DESIGN STANDARDS PRIOR TO BACKFILLING OF PIPING IN TRENCH. CONTRACTOR SHALL NOT COVER PIPING UNTIL SUCH TIME AS INSPECTOR HAS NOTIFIED CONTRACTOR THAT RESULTS OF PIPING INSPECTION ARE SATISFACTORY AND THAT BACKFILLING MAY BE ACCOMPLISHED. ANY PIPING INSTALLED AND/OR BACKFILLED WITHOUT INSPECTOR'S SPECIFIC APPROVAL SHALL BE UNCOVERED AT INSPECTOR'S DIRECTION AND INSPECTED ACCORDINGLY. 24-HOUR NOTICE REQUIRED.
- ALL MECHANICAL FITTINGS MUST BE MEGALUG RESTRAINED JOINTS OR APPROVED EQUAL.
- THE CITY OF SUGAR LAND MUST HAVE A COPY OF THE BACTERIOLOGICAL TEST RESULTS AT LEAST 24 HOURS PRIOR TO THE INITIAL INSPECTION. IF NOT, THEN THE INSPECTION WILL BE RESCHEDULED.


No.	DATE	REVISION
SEAL:		
_____, DATE _____		
DESIGN ENGINEER:		
		
CITY OF SUGAR LAND, TEXAS ENGINEERING DEPARTMENT		
CONSTRUCTION PLANS FOR:		
GENERAL CONSTRUCTION NOTES II		
JOB No.: DATE: DESIGNED BY: DRAWN BY: CHECKED BY: SCALE:		SL-02-06 SHEET OF

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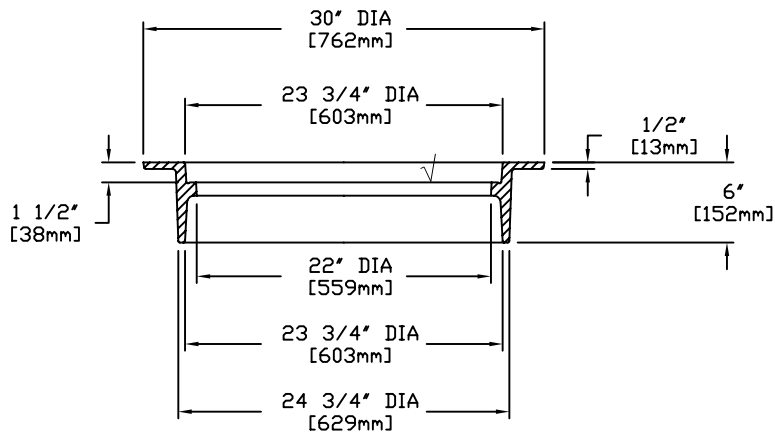
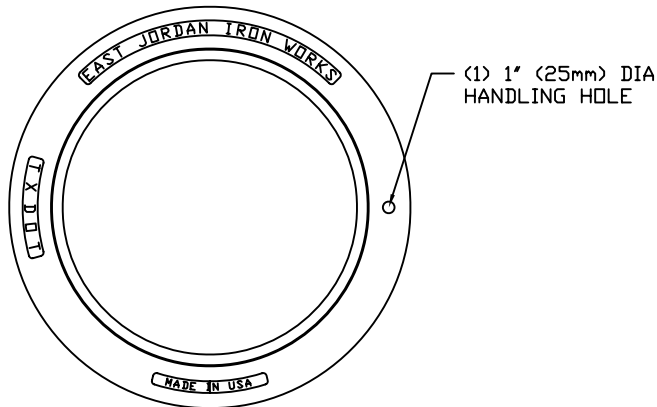


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No.	DATE	REVISION
SEAL:		
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DESIGN ENGINEER:		
		
CITY OF SUGAR LAND, TEXAS ENGINEERING DEPARTMENT		
<u>CONSTRUCTION PLANS FOR:</u>		
STORM SEWER MANHOLE CONSTRUCTION DETAILS		
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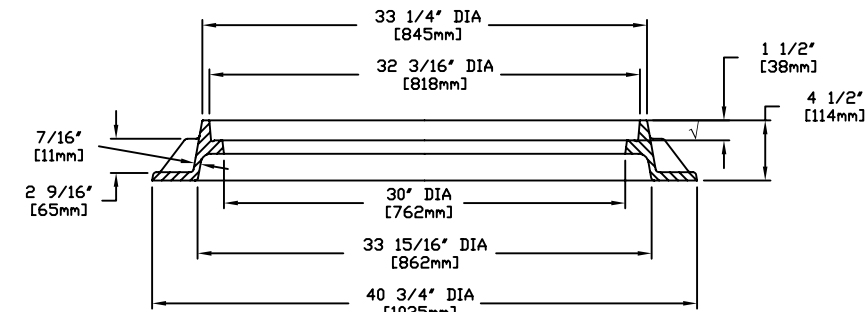
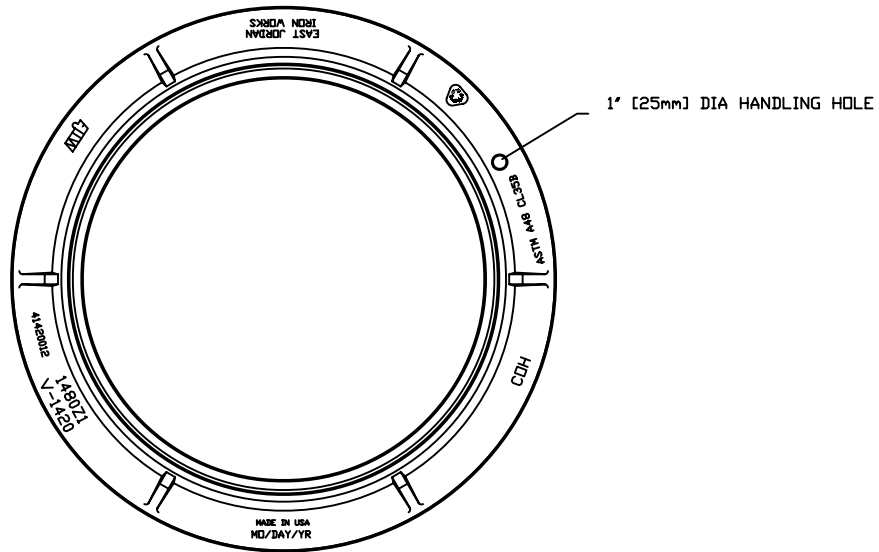
PLOT TIME:



24" MANHOLE FRAME

N.T.S.

EAST JORDAN IRON WORKS OR APPROVED EQUAL

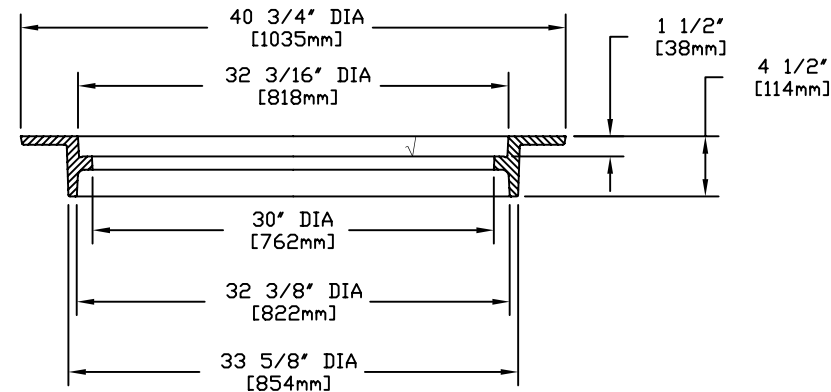
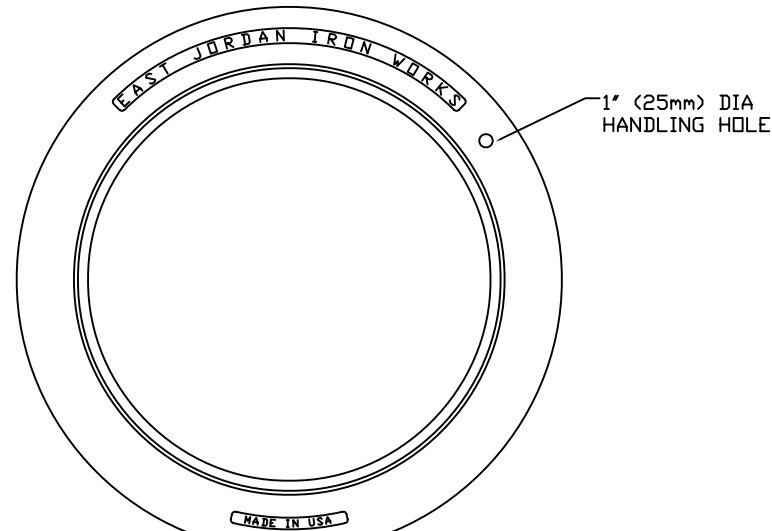


FRAME SECTION

32" MANHOLE FRAME W/O MUD RING

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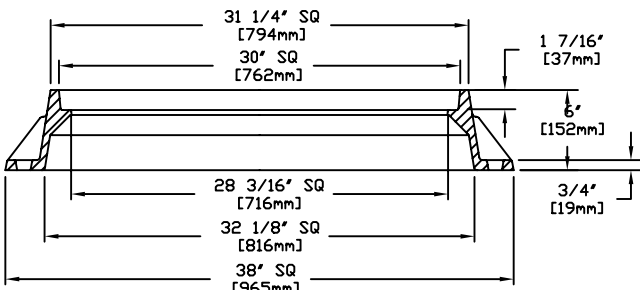
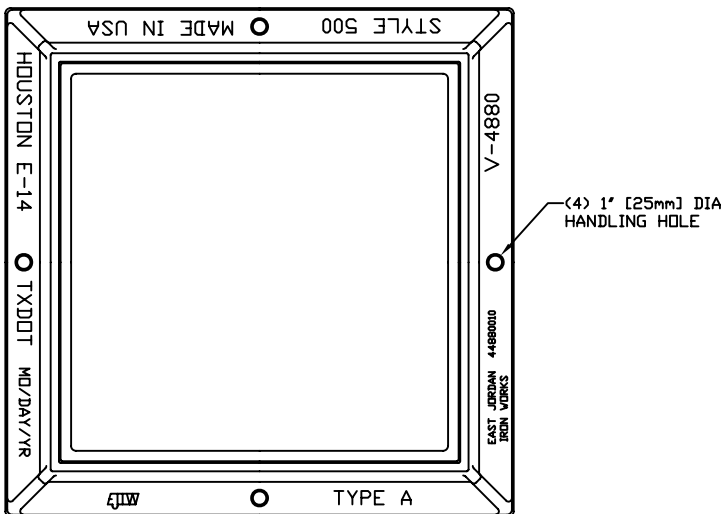
EAST JORDAN IRON WORKS OR APPROVED EQUAL



32" MANHOLE FRAME

N.T.S.

EAST JORDAN IRON WORKS OR APPROVED EQUAL

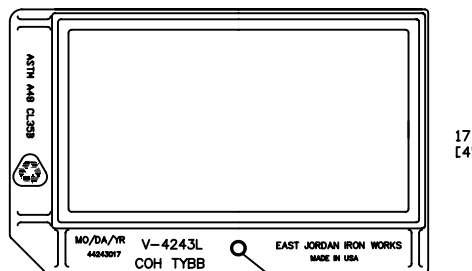


FRAME SECTION

TYPE A INLET FRAME

EAST JORDAN IRON WORKS OR APPROVED EQUAL

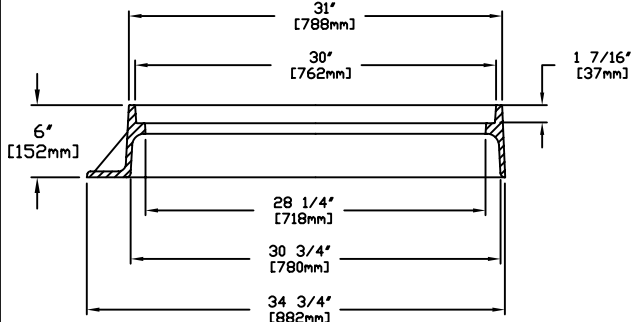
N.T.S.



PLAN VIEW

1" [25mm] DIA HANDLING HOLE

SECTION VIEW

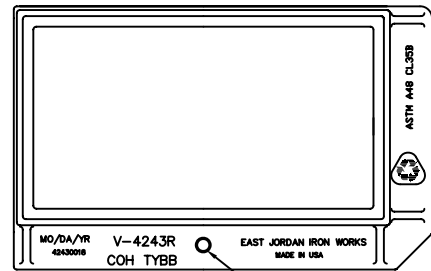


SECTION VIEW

LEFT FRAME

N.T.S.

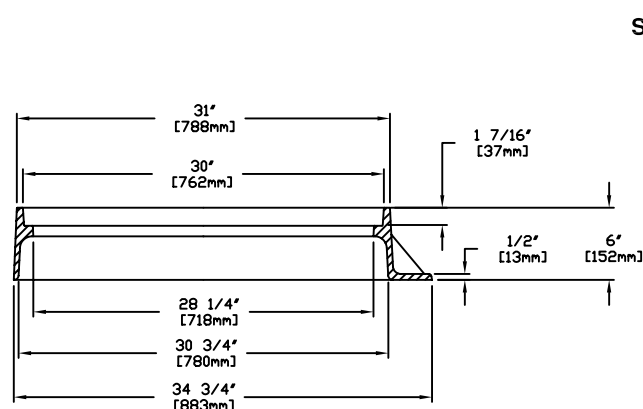
EAST JORDAN IRON WORKS OR APPROVED EQUAL



PLAN VIEW

1" [25mm] DIA HANDLING HOLE

SECTION VIEW



SECTION VIEW

RIGHT FRAME

N.T.S.

EAST JORDAN IRON WORKS OR APPROVED EQUAL

No.	DATE	REVISION

SEAL:

DESIGN ENGINEER: _____ DATE: _____



CITY OF SUGAR LAND, TEXAS
ENGINEERING DEPARTMENT

CONSTRUCTION PLANS FOR:

STORM SEWER
CONSTRUCTION DETAILS

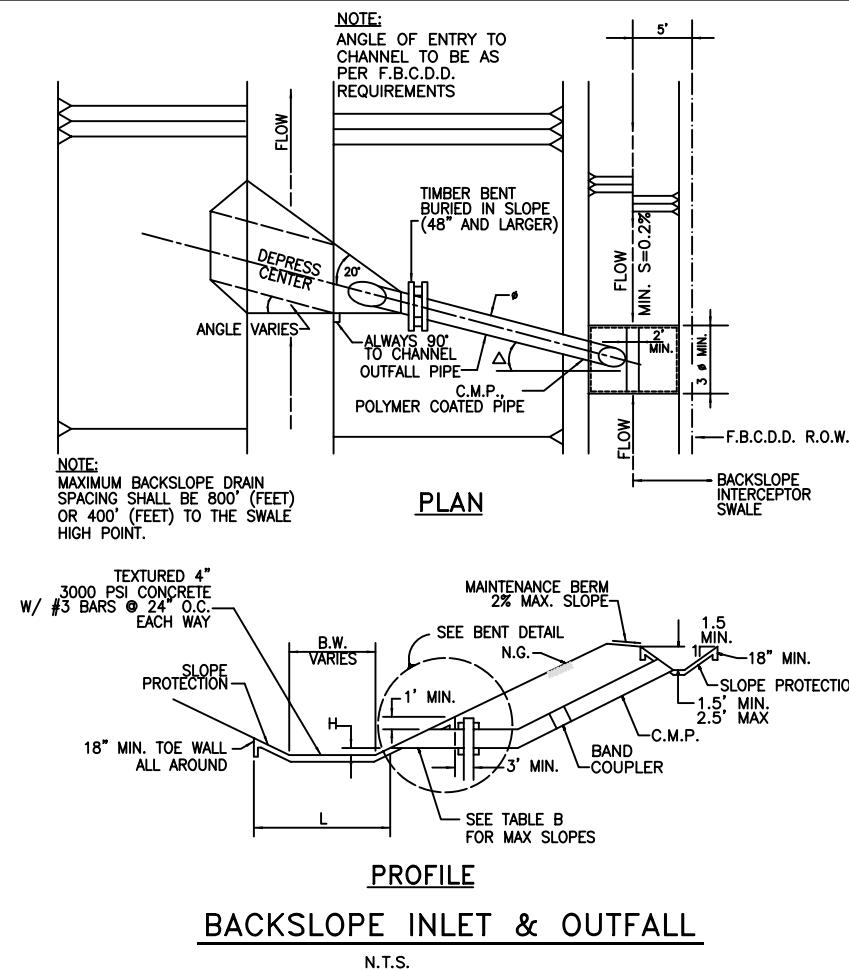
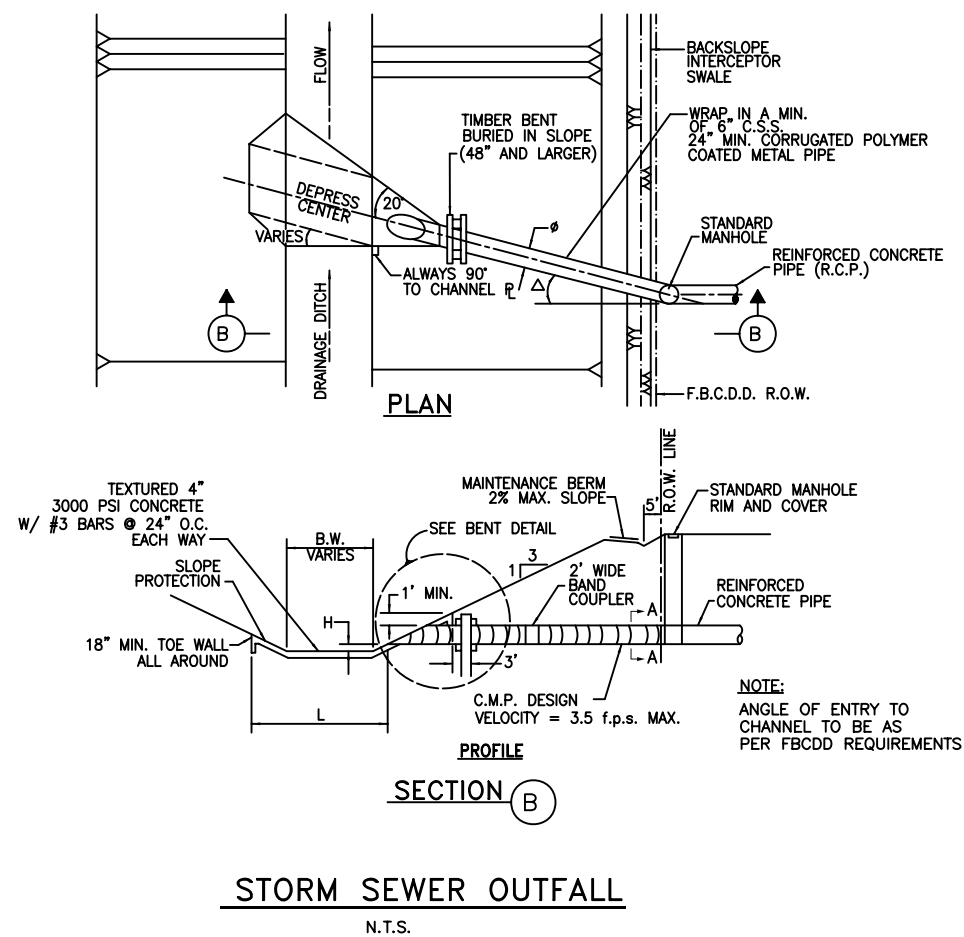
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DATE:
DESIGNED BY:
DRAWN BY:
CHECKED BY:
SCALE:

SL-05-06

SHEET OF

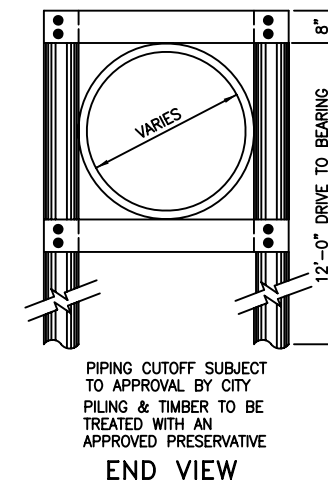
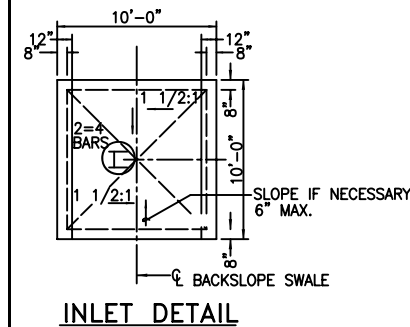
CAD FILE PATH:
PLOT DATE:

CAD FILE PATH:
PLOT DATE:



SIZE 2 2/3" X 1 1/2" CORRUGATION	PIPE GAUGE	BAND COUPLER GAUGE	SIZE 3'X1' & 5'X1' CORRUGATION	PIPE GAUGE	BAND COUPLER GAUGE
24"	12	16			
30"	12	16			
36"	12	16			
42"	12	16			
48"	12	16	48"	16	18
54"	12	14	54"	16	18
60"	12	14	60"	16	18
66"	10	12	66"	16	18
72"	10	12	72"	16	18
78"	8	10	78"	14	16
84"	8	10	84"	14	16

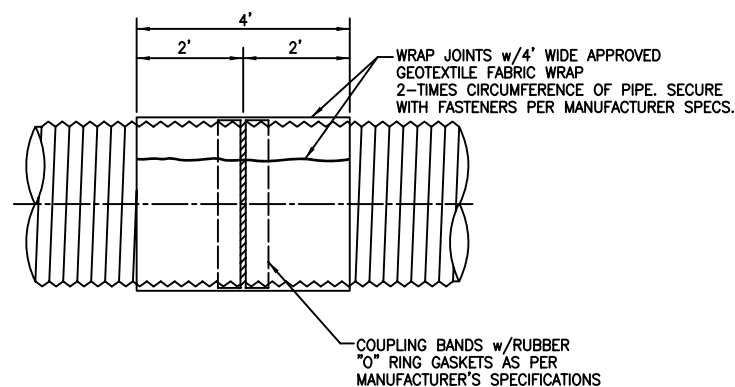
PIPE DIA.	SLOPE	VELOCITY
24"	0.6%	3.25 f.p.s
36"	0.3%	3.00 f.p.s
42"	0.2%	2.75 f.p.s
48"	0.2%	3.00 f.p.s
54"	0.2%	3.25 f.p.s



CONSTRUCTION NOTES:

L : $\frac{B.W.}{PIPE \ \phi} \leq 7'-6" \Rightarrow$ LENGTH WILL EXTEND ONE-HALF PIPE ϕ ABOVE \uparrow ON OPPOSITE BANK (MIN. 36") OR A MINIMUM OF 6-PIPE ϕ TOWARDS OPPOSITE BANK OF CHANNEL. WHICH EVER IS THE LESSER.

Δ : PROP. 24" TO 42" $\Delta = 15'$
 PROP. 48" AND LARGER $\Delta = 30'$
 H : FOR PIPE SIZES 24" TO 42"
 H=3' MAX.. AND 1' MIN.
 FOR PIPE SIZES 48" AND LARGER
 H=1' MAX. AND MIN.

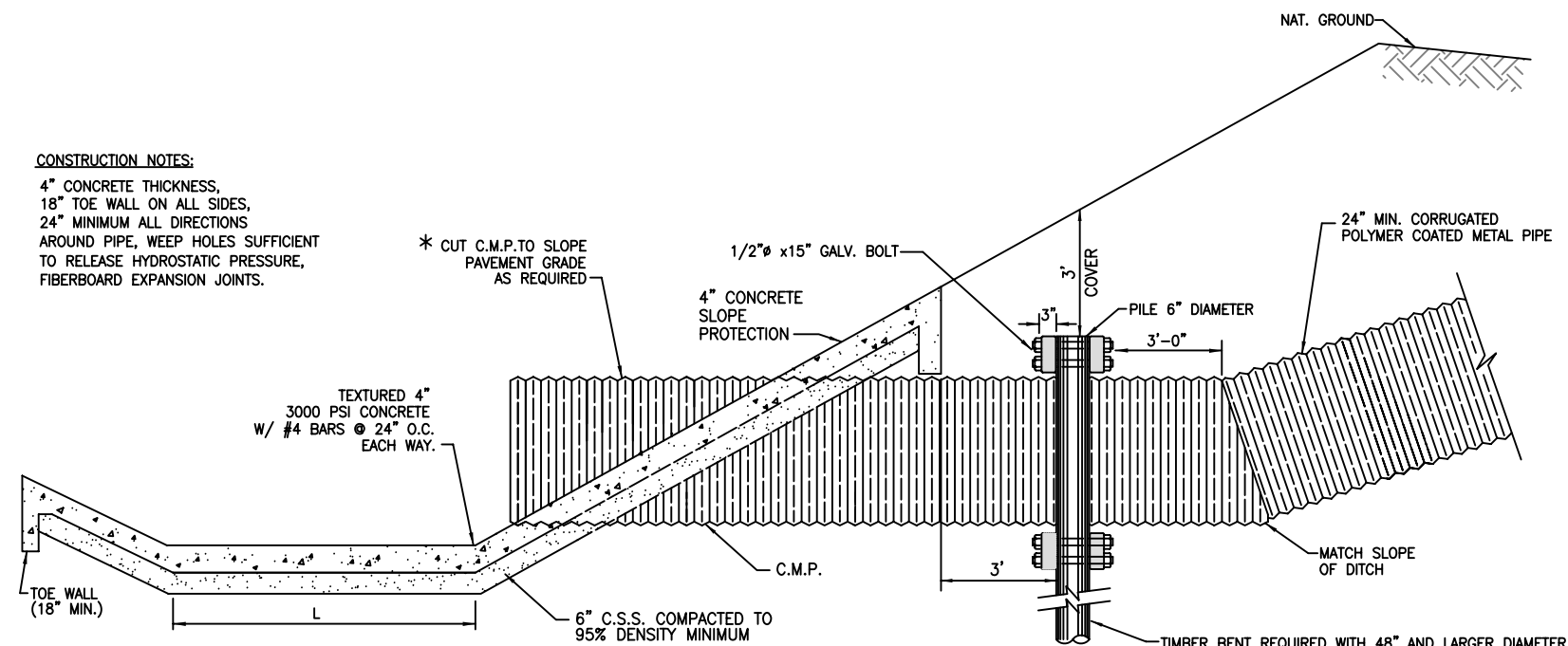


STORM SEWER JOINT WRAP DETAIL

N.T.S.

CONSTRUCTION NOTES:

4" CONCRETE THICKNESS,
18" TOE WALL ON ALL SIDES,
24" MINIMUM ALL DIRECTIONS
AROUND PIPE, WEEP HOLES SUFFICIENT
TO RELEASE HYDROSTATIC PRESSURE,
FIBERBOARD EXPANSION JOINTS.



PROFILE

TIMBER BENT FOR CORRUGATED
METAL PIPE OUTFALL

N.T.S.

No.	DATE	REVISION

SEAL:

DESIGN ENGINEER:

DATE _____



CITY OF SUGAR LAND, TEXAS
ENGINEERING DEPARTMENT

CONSTRUCTION PLANS FOR:

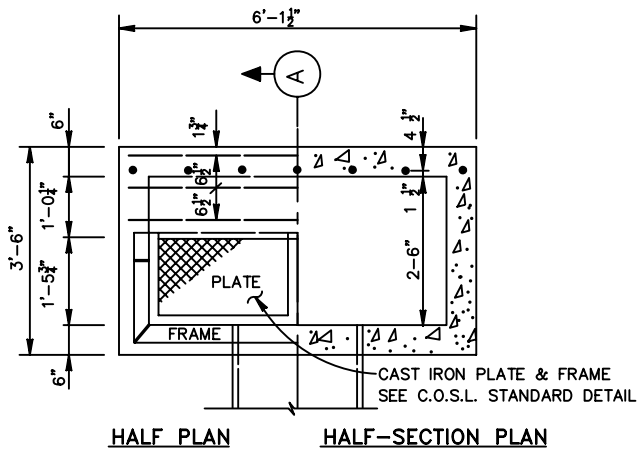
STORM SEWER OUTFALL CONSTRUCTION DETAILS

JOB No.:
DATE:
DESIGNED BY:
DRAWN BY:
CHECKED BY:
SCALE:

SL-06-06

SHEET OF

"B-B" INLET
(REPLACEMENT ONLY)

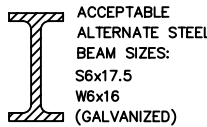
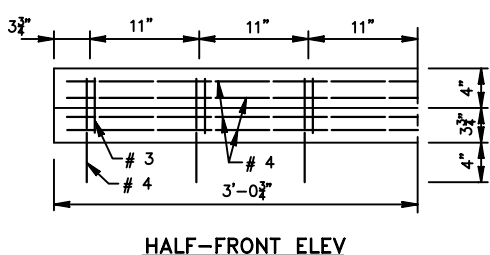
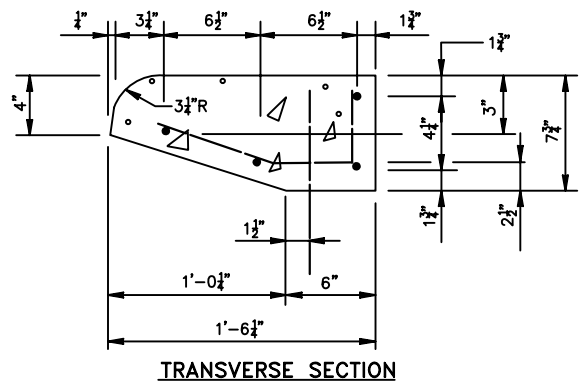
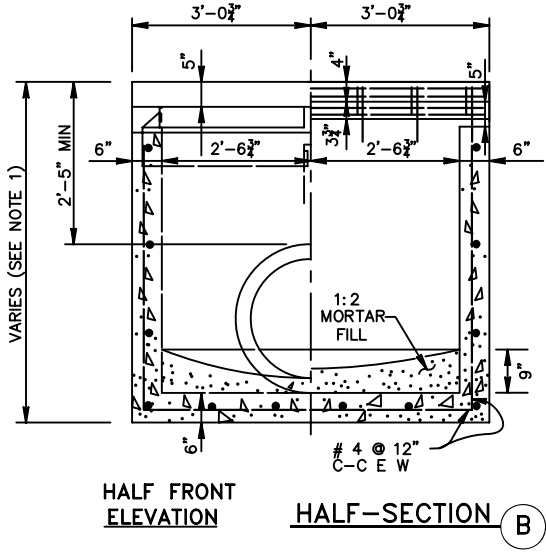
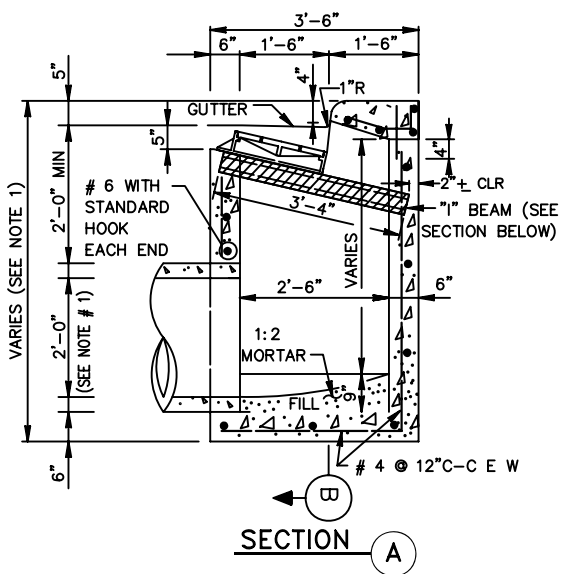


GENERAL NOTES:

USE STD CAST IRON FRAME & PLATES.
LEAD SHALL LEAVE INLET AT LOCATION
AND GRADE REQUIRED.

NOTES:

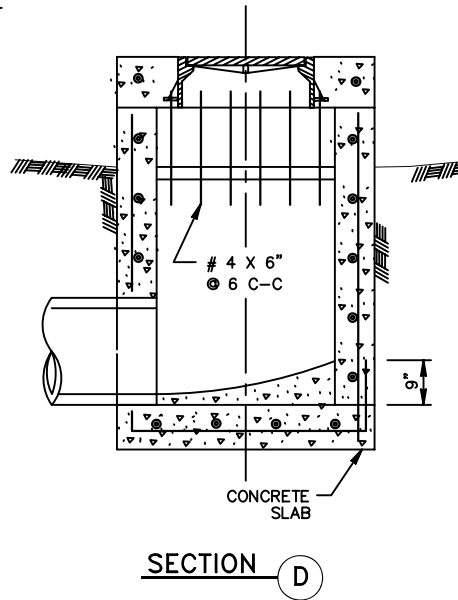
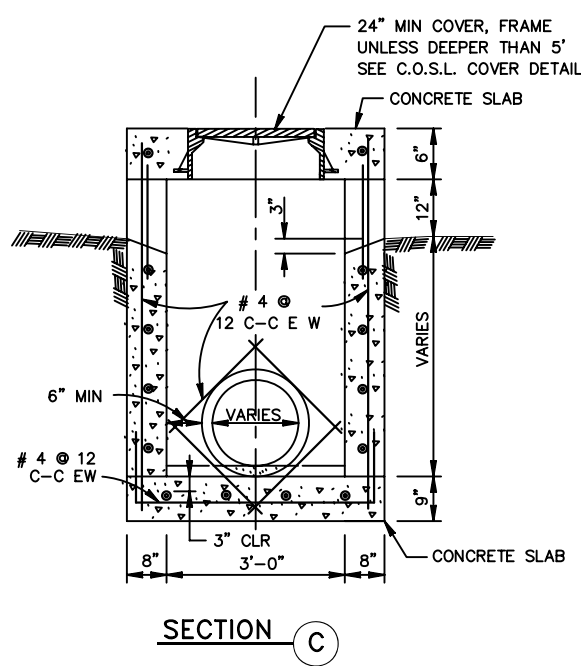
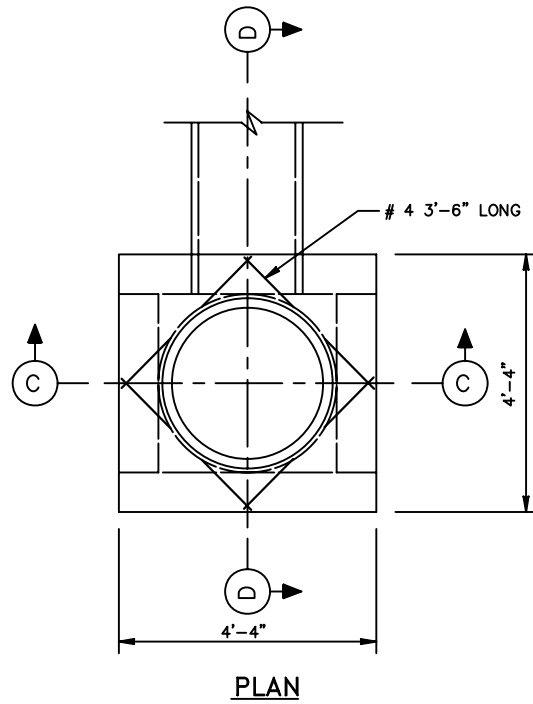
1. DIMENSION VARIES BASED ON PIPE
DIAMETER AND WALL THICKNESS.
2. CENTER REINFORCING IN SLAB AND WALLS.
3. CENTER STEEL BEAM ON INLET AND
CAST INTO WALLS AS SHOWN.



ACCEPTABLE
ALTERNATE STEEL
BEAM SIZES:
S6x17.5
W6x16
(GALVANIZED)

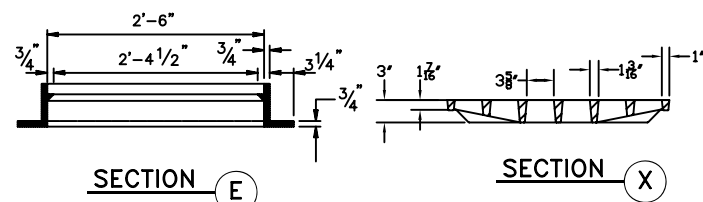
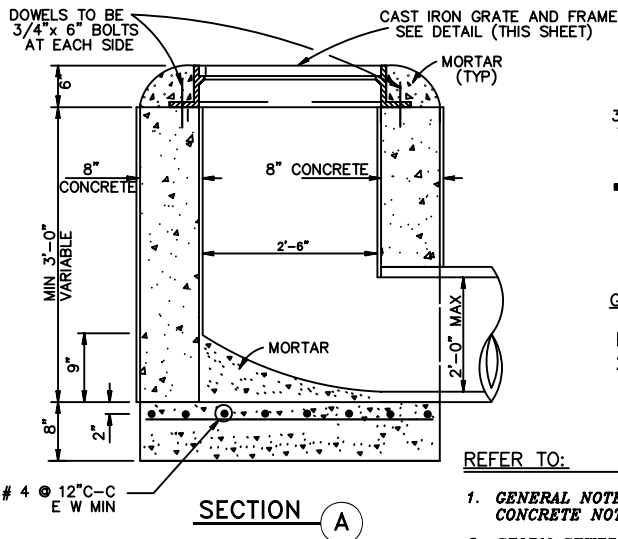
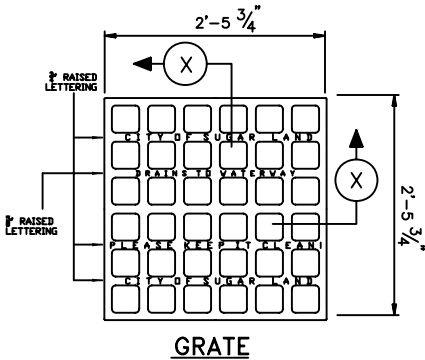
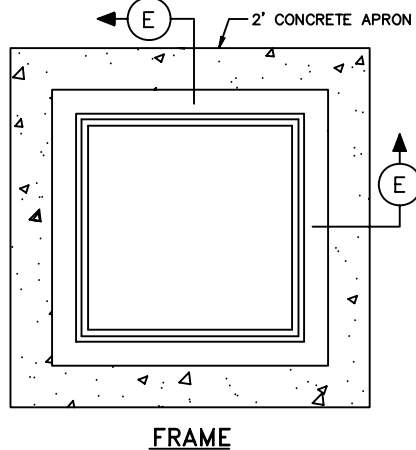
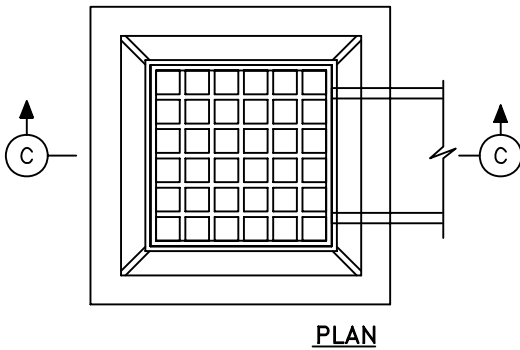
PRECAST CURB BEAM

CURB BEAM BAR LIST				
NO	SIZE	LENGTH	SHAPE	LOC
4	# 4	5'-10"	ST	HOR
7	# 4	0'-10"	ST	VERT
7	# 3	1'-6"	BT	



TYPE "E" INLET
N.T.S.

TYPE "A" INLET
N.T.S.



GENERAL CONSTRUCTION NOTES:

1. CONCRETE CAST WALLS SHALL HAVE #4 REBAR
PLACED @ 12" C-C E W.
2. GRATE LID IS EAST JORDAN IRON WORKS OR APPROVED EQUAL

REFER TO:

1. GENERAL NOTES, C.S.S. &
CONCRETE NOTES.
2. STORM SEWER NOTES

No.	DATE	REVISION

SEAL:

DESIGN ENGINEER: _____ DATE: _____

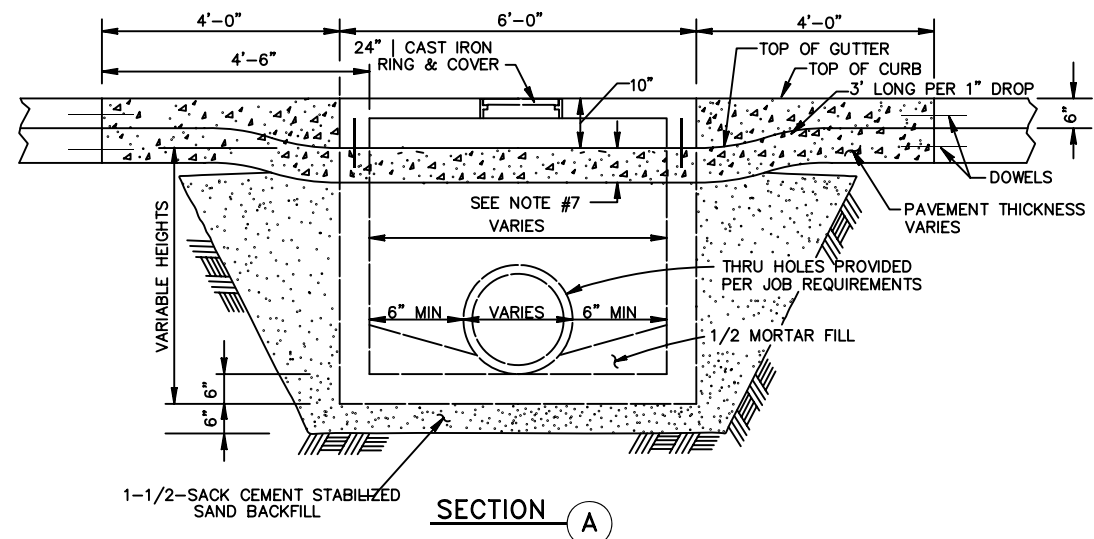
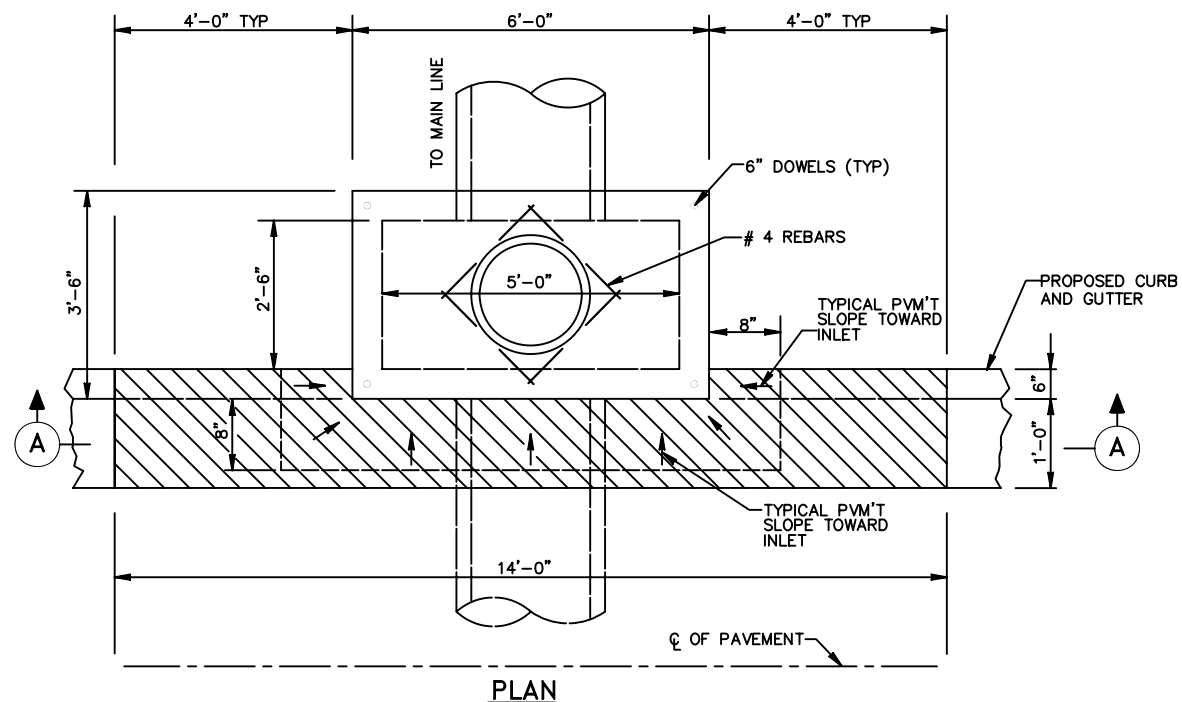


CITY OF SUGAR LAND, TEXAS
ENGINEERING DEPARTMENT

CONSTRUCTION PLANS FOR:

STORM SEWER INLET
CONSTRUCTION DETAILS I

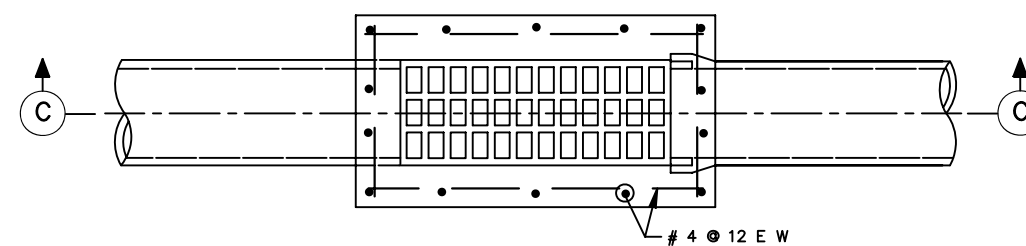
JOB No.: DATE: DESIGNED BY: DRAWN BY: CHECKED BY: SCALE:	SL-07-06 SHEET OF
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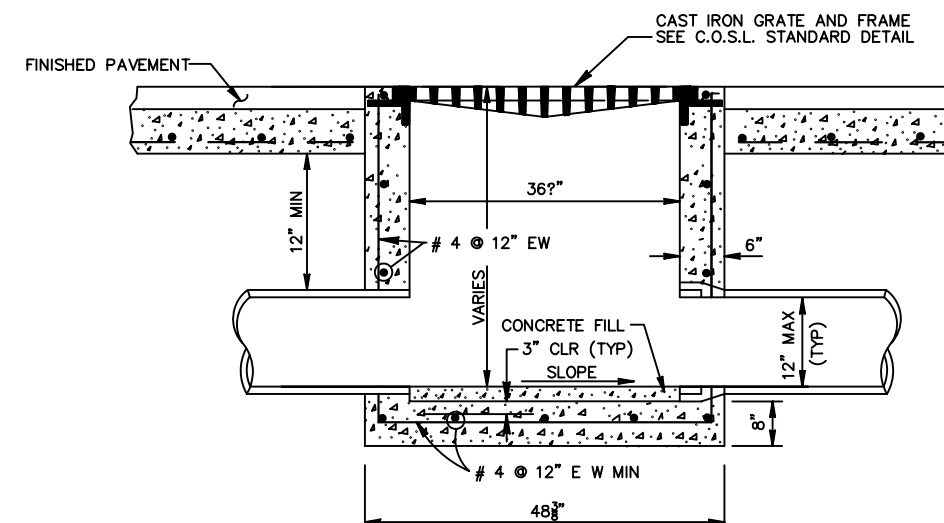
TYPE "H-2" INLET

NOTES:

1. INLET WALLS MAY BE EXTENDED USING PRECAST RISER SECTION.
2. INLET TOPS MUST BE SECURED TO THE INLET WALL USING #6 DOWELS DRILLED AND GROUTED A MINIMUM DEPTH OF 5" INTO THE INLET WALL.
3. INLET BACKFILL SHALL BE CEMENT STABILIZED SAND TO THE TOP OF INLET FIRST STAGE.
4. GRADE 60 REINFORCED. #4 STEEL REBAR TO CONFORM TO ASTM A615 ON REQUIRED CENTERS OR EQUAL.
5. PRECAST INLET MUST BE CONSTRUCTED TO SPECIFICATIONS REQUIRED BY APPROVED DRAWINGS.
(SEE GENERAL NOTES)
6. TOPS POURED-IN-PLACE REQUIRE #4 REBAR @ 12" C-C EACH WAY, 4,500 PSI CONCRETE MINIMUM AND 3" THICK MINIMUM.
7. PAVEMENT DEPTH AT INLET SHALL BE EQUAL TO OR GREATER THAN REQUIRED PAVEMENT DEPTH.
8. DEPRESS
9. ALL SIDES OF ALL INLETS MUST BE COMPACTED

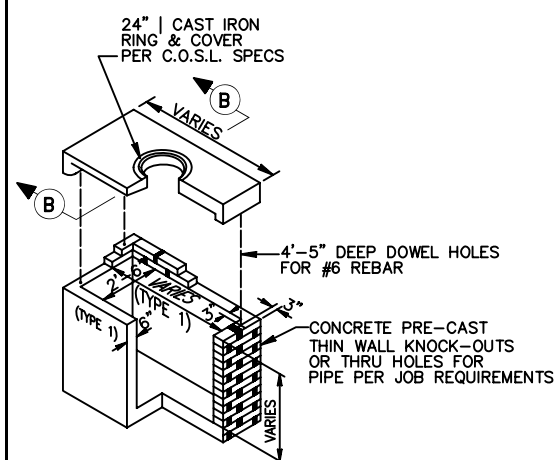


PLAN



SECTION C

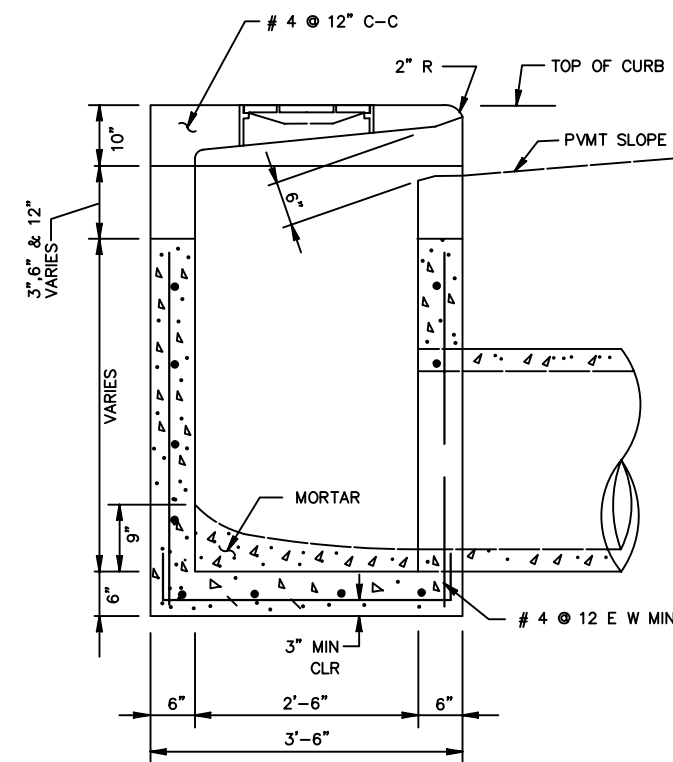
TYPE "D" INLET



NOTE:
REFER TO INSTALLATION FOR
TYPE H-2 5'-0" CURB INLET
ON PAVING DETAIL SHEET

TYPE "H-2" PRECAST INLET

N.T.S.



SECTION B

REFER TO:

1. GENERAL NOTES
2. SEE C.S.S., PAVEMENT NOTES

No.	DATE	REVISION
SEAL:		
_____ DATE _____		
DESIGN ENGINEER:		
CITY OF SUGAR LAND TEXAS		
CITY OF SUGAR LAND, TEXAS ENGINEERING DEPARTMENT		
<u>CONSTRUCTION PLANS FOR:</u>		
STORM SEWER INLET CONSTRUCTION DETAILS II		
JOB No.: DATE: DESIGNED BY: DRAWN BY: CHECKED BY: SCALE:	SL-08-06	
SHEET	OF	

CAD FILE PATH:
PLOT DATE:




TYPE "C" INLET

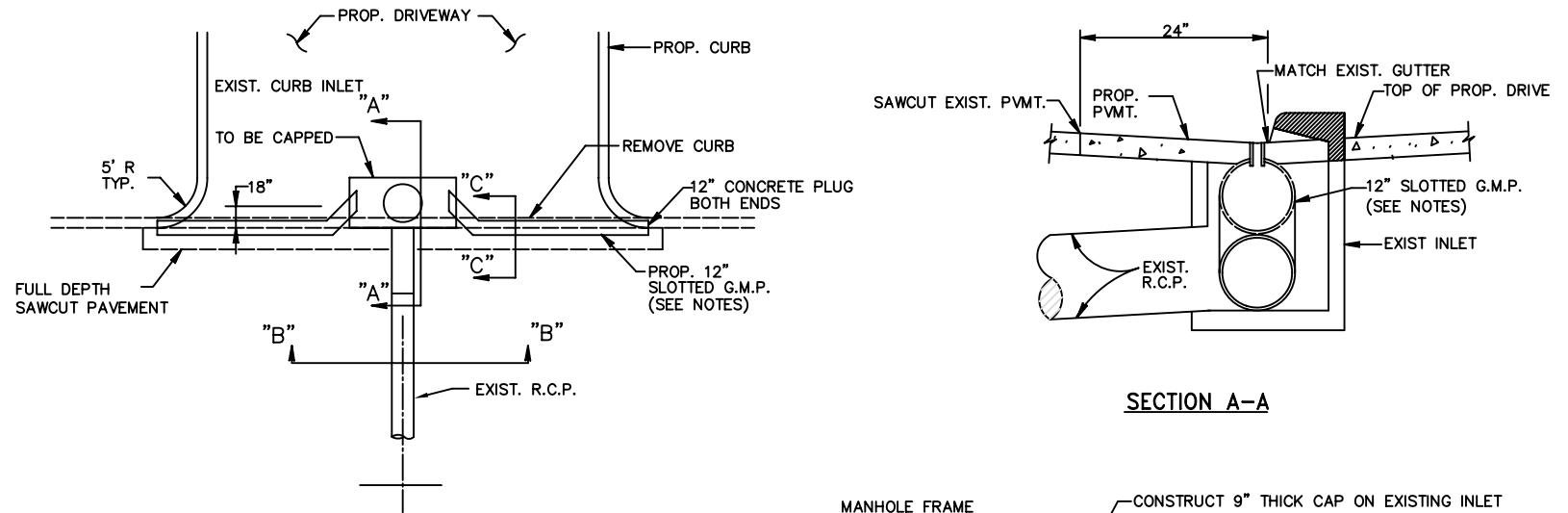
N.T.S.

TYPE "C" INLET WITH ONE EXTENSION
TYPE "C-1" INLET WITH DOUBLE EXTENSION
TYPE "C-2" INLET WITH EXTEN. ON EACH SIDE
TYPE "C-2A" INLET WITH NO EXTENSION

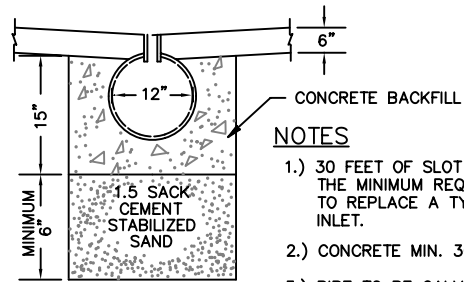
1. FOR TYPE "C-1" INLETS PROVIDE A CENTER 6"x6" COLUMNS IN THE CURB LINE BETWEEN ALL EXTENSIONS.
2. WALLS TO BE 6" IF BUILT WITH REINFORCED CONCRETE. BRICK WALLS ARE NOT ALLOWED.

No.	DATE	REVISION	
SEAL:			
DESIGN ENGINEER: _____ DATE _____			
<div style="text-align: center;"> CITY OF SUGAR LAND, TEXAS ENGINEERING DEPARTMENT</div>			
<u>CONSTRUCTION PLANS FOR:</u>			
<div style="text-align: center;">STORM SEWER INLET CONSTRUCTION DETAILS III</div>			
JOB No.: DATE: DESIGNED BY: DRAWN BY: CHECKED BY: SCALE:	SL-09-06 SHEET OF		

PLOT TIME:

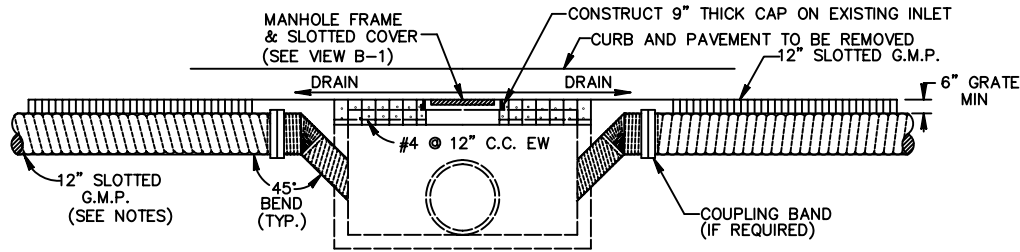


**SLOTTED PIPE INSTALLATION
FOR DRIVEWAY CONSTRUCTION**

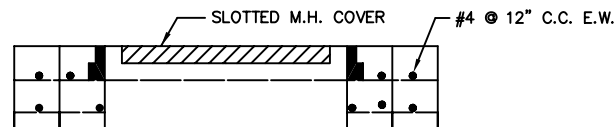


SLOTTED DRAIN DETAIL
N.T.S.

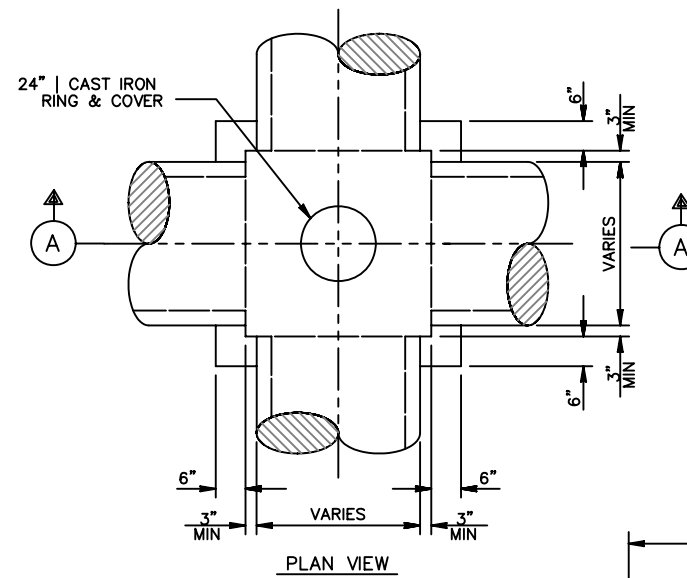
- NOTES**
- 1.) 30 FEET OF SLOT IS THE MINIMUM REQUIREMENT TO REPLACE A TYPE B-B INLET.
 - 2.) CONCRETE MIN. 3000 P.S.I.
 - 3.) PIPE TO BE GALVANIZED TYPE II WITH GALVANIZED SLOT
 - 4.) CONDITIONS MAY VARY. CONTRACTOR TO ROLL FITTING AND ENTER BOX BELOW 9" CAP.
 - 5.) SEE C.S.S. NOTES.



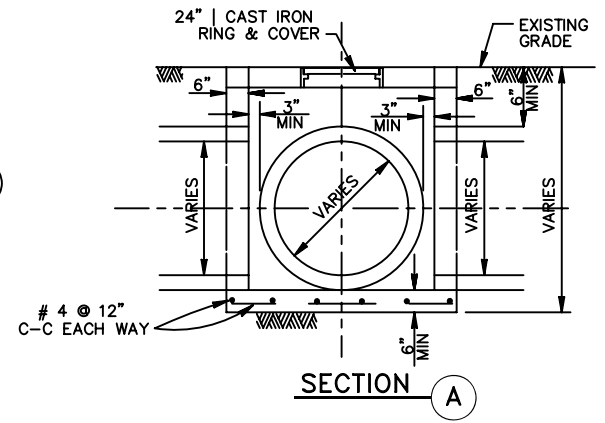
SECTION B-B



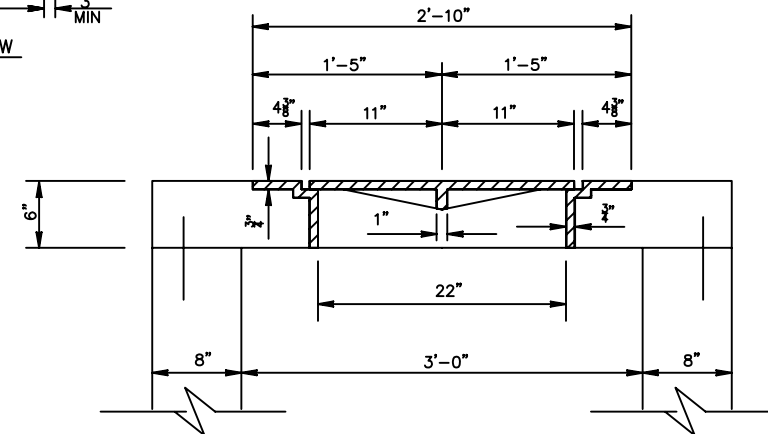
VIEW B-1



PLAN VIEW



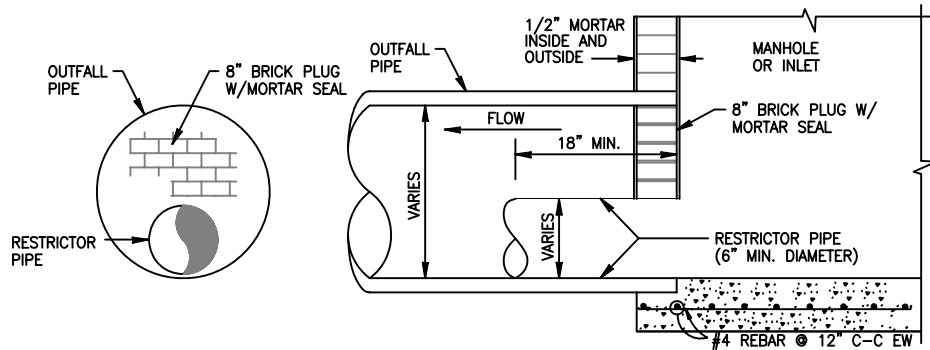
SECTION A-A



FRAME AND COVER SECTION

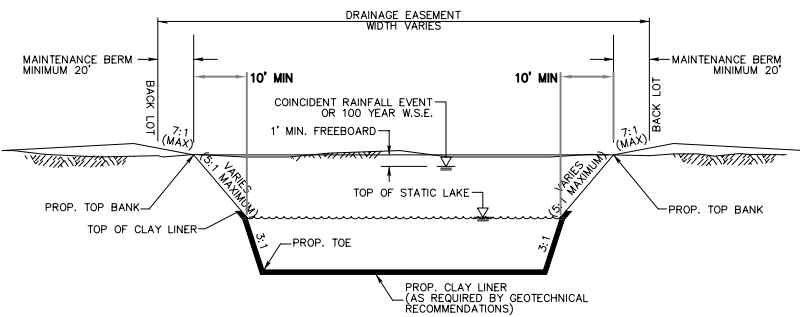
JUNCTION BOX
N.T.S.

No.	DATE	REVISION

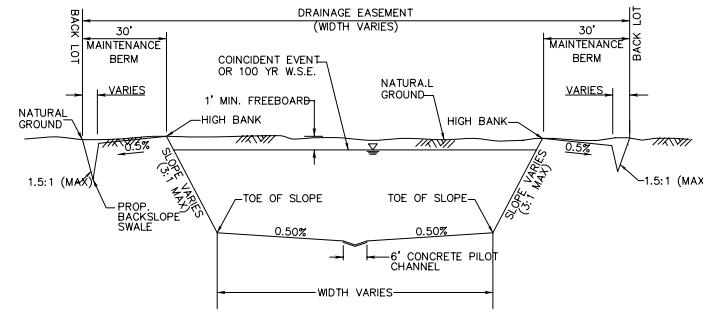


CHOKE OUTFALL RESTRICTOR DETAIL

STORM SEWER CHOKe RESTRICTOR
N.T.S.



WET DETENTION POND/AMENITY LAKE
N.T.S.



DRY DETENTION POND
N.T.S.

- REFER TO:**
1. GENERAL NOTES
 2. STORM SEWER NOTES

SEAL:

DESIGN ENGINEER: _____ DATE: _____

CITY OF SUGAR LAND, TEXAS

CITY OF SUGAR LAND, TEXAS
ENGINEERING DEPARTMENT

CONSTRUCTION PLANS FOR:

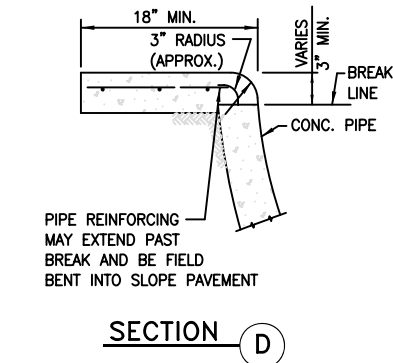
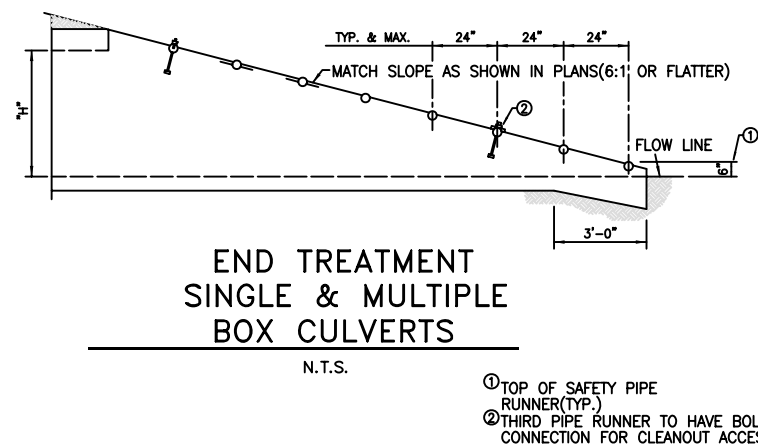
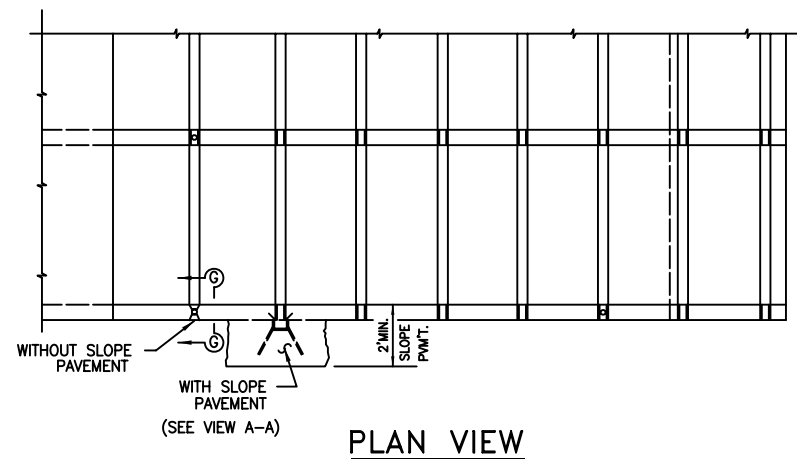
STORM SEWER
CONSTRUCTION DETAILS

JOB No.:
DATE:
DESIGNED BY:
DRAWN BY:
CHECKED BY:
SCALE:

SL-10-06
SHEET OF

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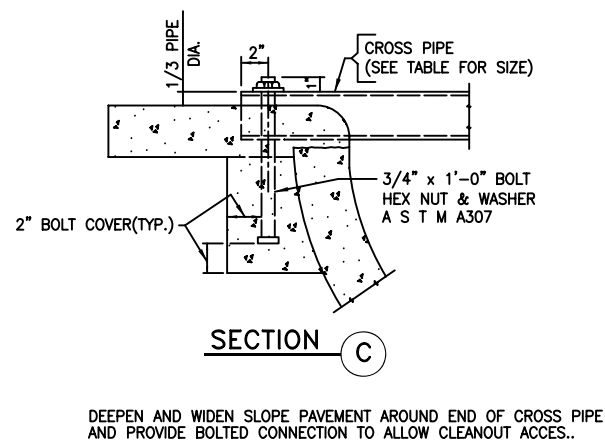
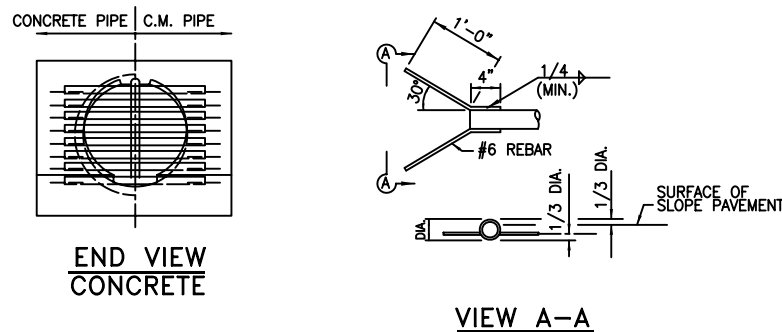
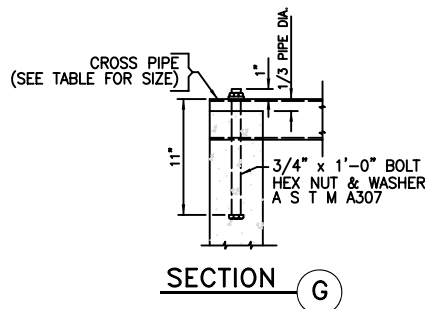
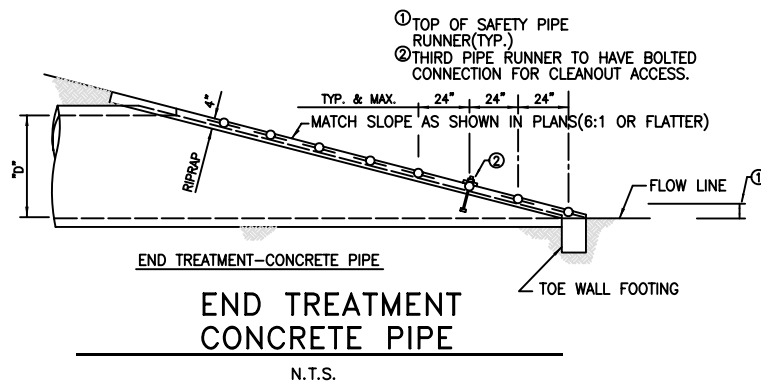
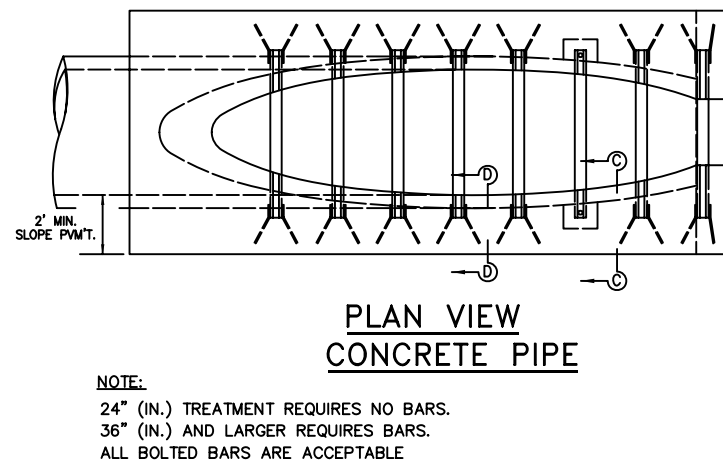
CAD FILE PATH:
 PLOT DATE:




NOTES:

1. THESE DETAILS ARE TO BE USED AS A GUIDE FOR INSTALLATION OF SAFETY PIPE RUNNERS FOR CROSS-DRAINAGE STRUCTURES WHERE OUT OF CONTROL VEHICLES MAY TRAVERSE THE OPENING APPROXIMATELY PERPENDICULAR TO THE SAFETY PIPE RUNNER. SOME INSTALLATIONS MAY REQUIRE THE PREPARATION OF SPECIAL DETAILS. IN GENERAL, SAFETY PIPE RUNNERS ARE INSTALLED ON CROSS-DRAINAGE STRUCTURES AT MAXIMUM SPACINGS OF APPROXIMATELY 24 INCHES.
SINGLE AND MULTIPLE 24" (IN.) OR SMALLER DIAMETER PIPES ARE PERMISSIBLE WITHOUT PIPE RUNNERS. SINGLE OR MULTIPLE BOX CULVERTS WITH SPANS OF 24" OR LESS ARE ALSO PERMISSIBLE WITHOUT SAFETY PIPE RUNNERS.
DESIGN: SAFETY PIPE RUNNERS ARE DESIGNED FOR A TRAVERSING LOAD OF 1,800 POUNDS AT YIELD AS RECOMMENDED BY RESEARCH REPORT 280-J, SAFETY TREATMENT OF ROADSIDE CROSS-DRAINAGE STRUCTURES, TEXAS TRANSPORTATION INSTITUTE, MARCH 1981.
2. SEE STORM OUTFALL DETAILS FOR SLOPE PAVEMENT REQUIREMENTS.

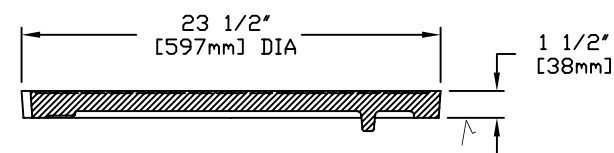
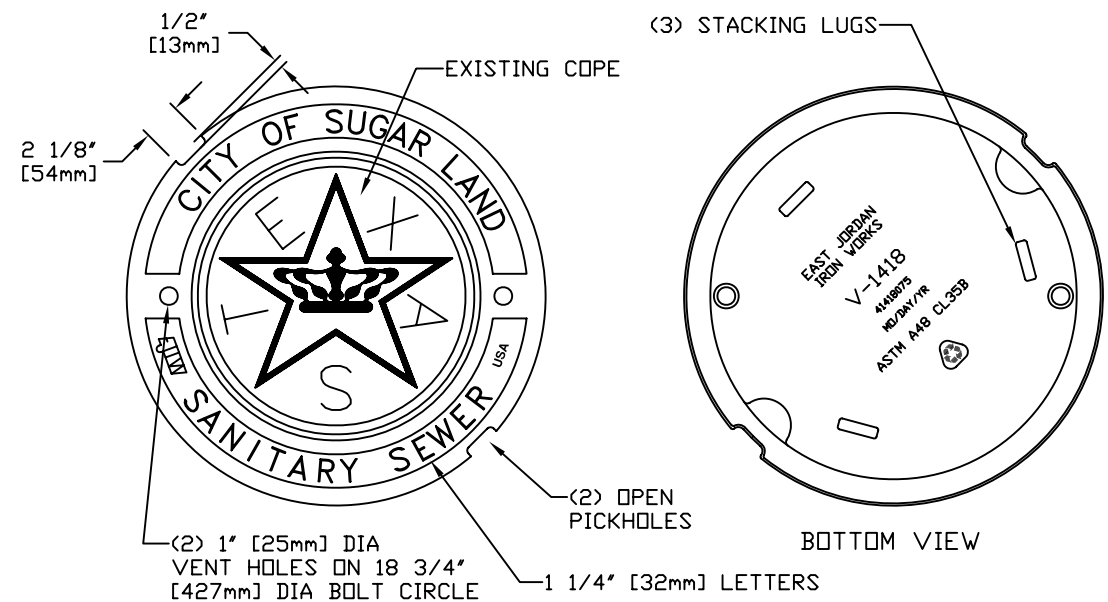
DIA.	WALL	O.D.	SLOPE	PIPE LGTH	TYPE	A INCH	B INCH	C INCH	D INCH	L	LENGTH END SEC FT.
24"	3"	30"	3:1	2-6"	2	3	9	36	54	7'-6"	11.27
			4:1	2-6"	2	3	9	24	48	5'-3"	12.33
			6:1	3-6"	3	3	9	36	72	12'-2"	18.23
36"	4"	44"	3:1	2-7"	2	4	10	36	54	10'-8"	14.75
			4:1	3-6"	3	4	10	26	60	13'-0"	18.21
			6:1	4-6"	4	4	10	36	72	18'-0"	25.36
42"	4"	51"	3:1	2-7"	2	4	10	27	45	11'-3"	15.81
			4:1	3-7"	3	4	10	51	75	16'-5"	21.9
			6:1	4-7"	4	4	10	54	90	22'-6"	30.41
48"	5"	58"	3:1	3-6"	3	5	11	36	54	13'-6"	18.44
			4:1	3-7"	3	5	11	39	63	17'-3"	23.27
			6:1	4-7"	4	5	11	36	72	24'-0"	32.44
54"	5"	65"	3:1	3-6"	3	5	11	27	45	14'-3"	19.5
			4:1	4-6"	4	5	11	36	60	19'-0"	25.43
			6:1	5-7"	5	5	11	63	99	29'-3"	38.27
60"	6"	72"	3:1	3-7"	3	6	12	45	63	17'-3"	22.64
			4:1	4-7"	4	6	12	60	84	23'-0"	29.98
			6:1	5-7"	5	6	12	45	81	30'-9"	40.28



REQUIRED PIPE SIZES FOR GIVEN PIPE YIELD										
CULVERT SIZE	PIPE RUNNER LENGTH	35 KS: ASTM A53, TX E & S GR. B			42 KS: ASTM A500, GR. B			52 KS: API 5LX52		
		NOM.	O.D.	I.D.	NOM.	O.D.	I.D.	NOM.	O.D.	I.D.
36"	48"	3" XXS 3 1/2" XS	3.500 4.000	2.300 3.364	3" x S 3 1/2" STD.	3.500 4.000	2.900 3.548	3' STD.	3.500	3.068
42"	54"	3" XXS 3 1/2" XS 4" STD.	3.500 4.000 4.500	2.300 3.364 4.026	3" XXS 3 1/2" XS 4" STD.	3.500 4.000 4.500	2.300 3.364 4.026	3" XS 3 1/2" STD.	3.500 4.000	2.900 3.548
48"	60"	3" XXS 4" XS	3.500 4.500	2.300 3.826	3" XXS 3 1/2" XS 4" STD.	3.500 4.000 4.500	2.300 3.364 4.026	3" XXS 3 1/2" STD.	3.500 4.000	2.300 3.548
54"	66"	4" XS 5" STD.	4.500 5.563	3.826 5.047	3" XXS 4" STD.	3.500 4.500	2.300 4.026	3" XXS 3 1/2" XS 4" STD.	3.500 4.000 4.500	2.300 3.364 4.026
60"	72"	4" XS 5" STD.	4.500 5.563	3.826 5.047	4" XS 5" STD.	4.500 5.563	3.826 5.047	3" XXS 3 1/2" XS 4" STD.	3.500 4.000 4.500	2.300 3.364 4.026

No.	DATE	REVISION	
SEAL:			
DESIGN ENGINEER:		DATE	
			
CITY OF SUGAR LAND, TEXAS ENGINEERING DEPARTMENT			
<u>CONSTRUCTION PLANS FOR:</u>			
SLOPE END TREATMENT			
JOB No.: DATE: DESIGNED BY: DRAWN BY: CHECKED BY: SCALE:		SL-11-06 SHEET OF	

CAD FILE PATH:
PLOT DATE:

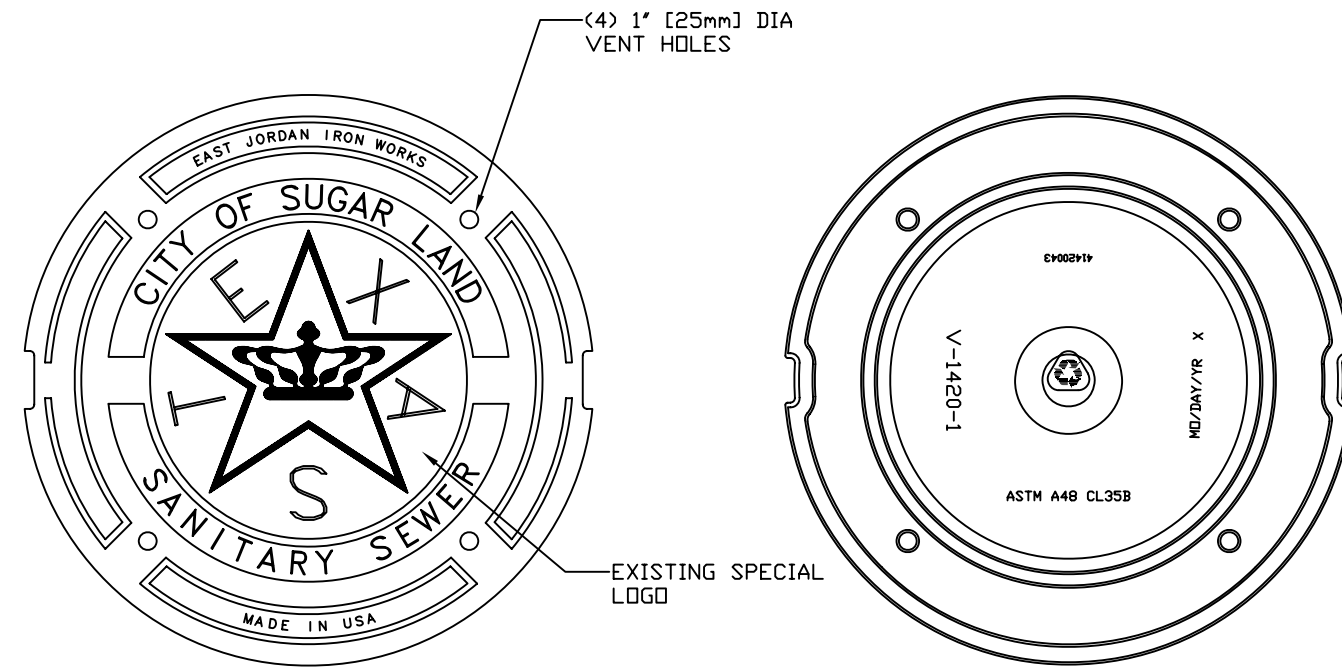


COVER SECTION

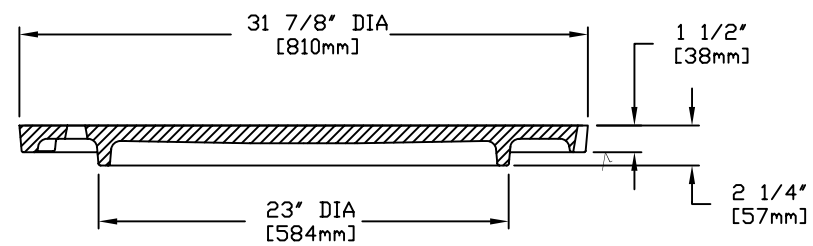
EAST JORDAN IRON WORKS OR APPROVED EQUAL

24" MANHOLE COVER

N.T.S.



**BOTTOM VIEW
OF COVER**



COVER SECTION


— DUCTILE IRON

EAST JORDAN IRON WORKS OR APPROVED EQUAL

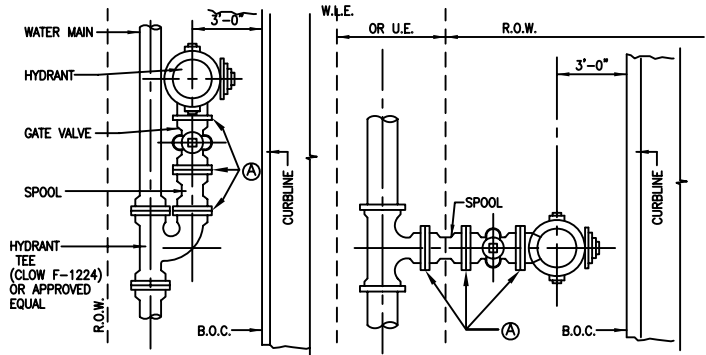
✓ MACHINED SURFACE

32" MANHOLE COVER

N.T.S.

No.	DATE	REVISION
SEAL:		
DESIGN ENGINEER: _____ DATE _____		
<div style="text-align: center;"><p>CITY OF SUGAR LAND, TEXAS ENGINEERING DEPARTMENT</p></div>		
<u>CONSTRUCTION PLANS FOR:</u>		
<div style="text-align: center;">SANITARY SEWER MANHOLE CONSTRUCTION DETAILS</div>		
JOB No.: DATE: DESIGNED BY: DRAWN BY: CHECKED BY: SCALE:	SL-12-06 SHEET OF	

PLOT TIME:



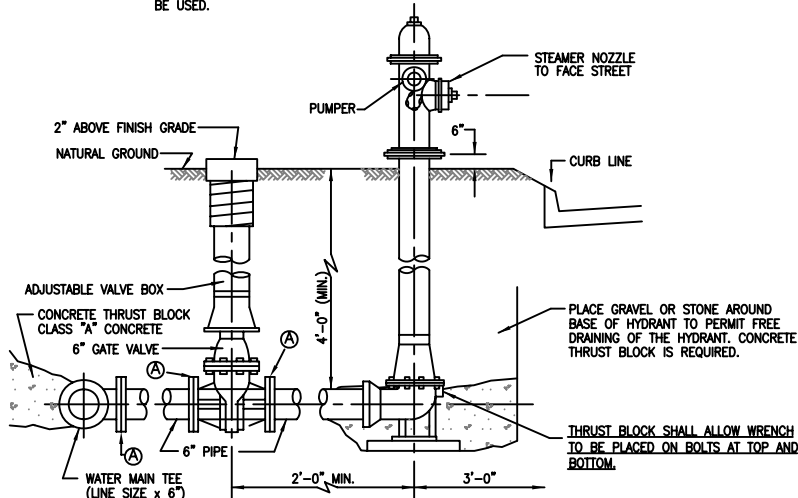
R.O.W. INSTALLATION

N.T.S.

EASEMENT INSTALLATION

N.T.S.

NOTE:
WHEN WATER LINE IS LOCATED IN
EASEMENT, STANDARD TEE MAY
BE USED.



FLUSHING VALVE COLOR CODE

MAIN LINE DIAMETER	BONNET, PUMPER CAP AND STEAMER CAP
6 INCHES (AND LESS)	YELLOW
8 INCHES	WHITE
10 TO 20 INCHES	GREEN
24 TO 60 INCHES	ORANGE

FLUSHING VALVE BODY TO BE PAINTED GEO-361 METALLIC ALUMINUM GRAY POLYURETHANE ENAMEL, BY GEO-GLEN ENTERPRISES OR APPROVED EQUAL.

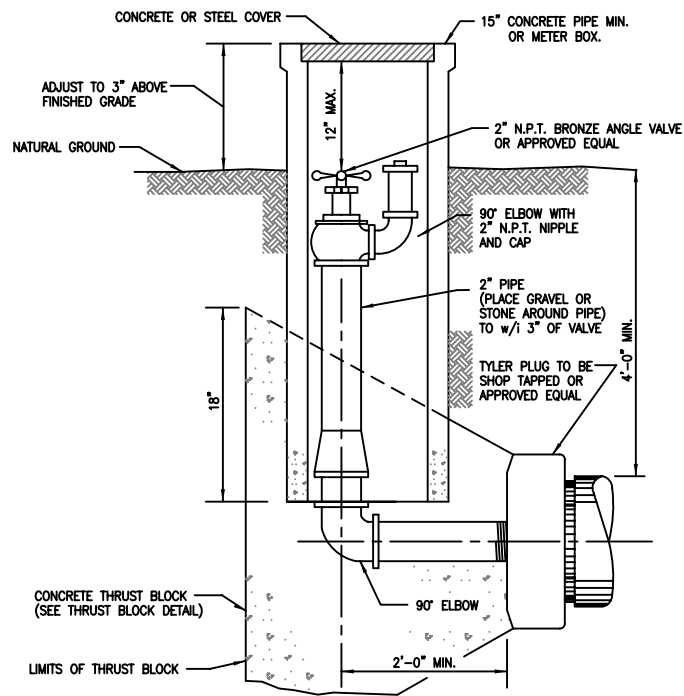
NOTE:
ALL FLUSHING VALVES SHALL BE
MUELLER, KENNEDY, AMERICAN,
M & H OR APPROVED EQUAL WITH
STEAMER NOZZLE SIZE 4.125"
PUMPER 2.5" N.S.T.

ALL FLUSHING VALVES TO BE SAND
BLASTED AND PAINTED AS PER C.O.S.L.
DESIGN STANDARDS.

Ⓐ = RESTRAINED JOINT

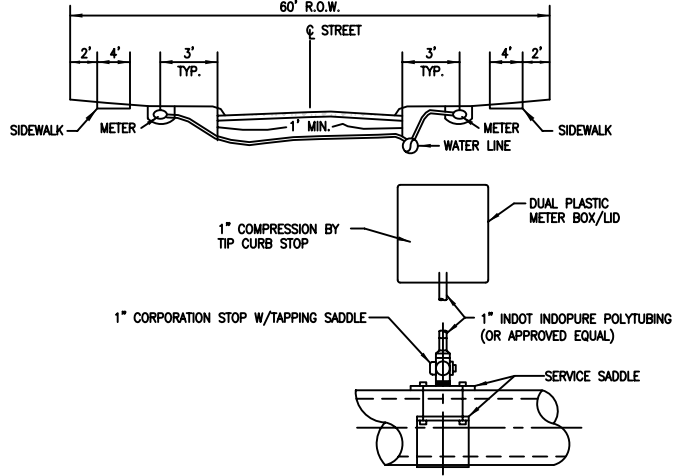
TYPICAL GATE & FLUSHING VALVE INSTALLATION

N.T.S.



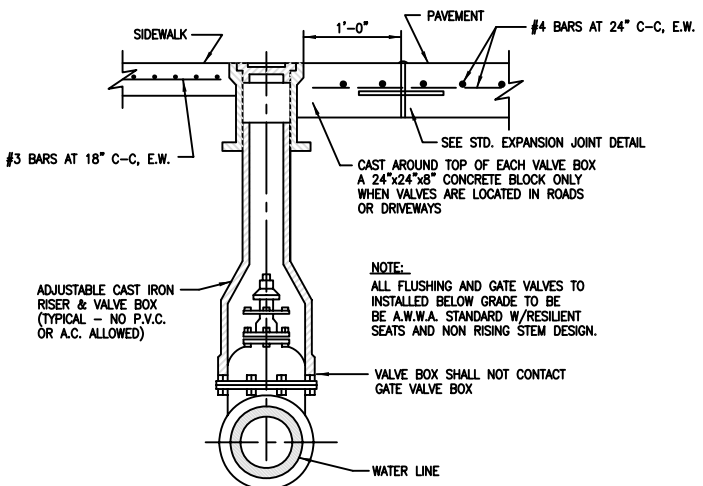
2" BLOW OFF VALVE ASSEMBLY

N.T.S.



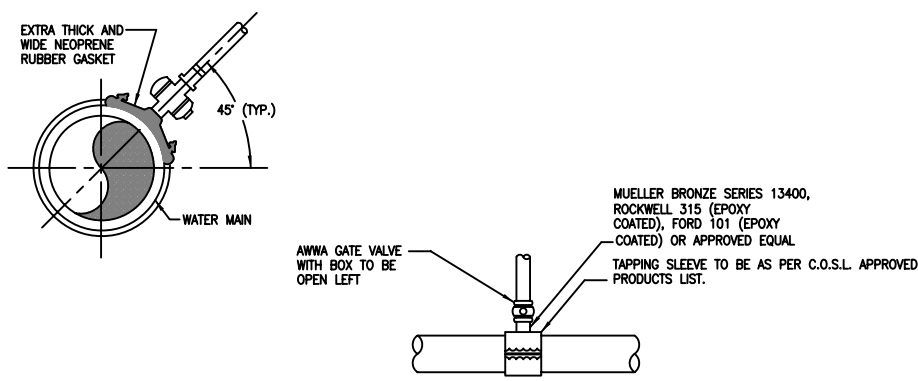
WATER SERVICE CONNECTION
AND
WATER SERVICE TAPPING ASSEMBLY DETAIL

N.T.S.



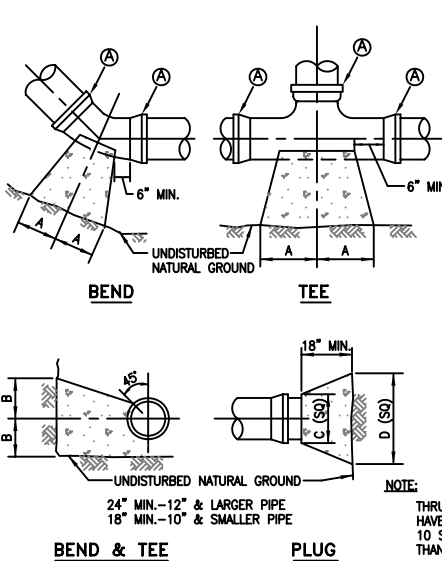
VALVE BOX INSTALLATION DETAIL

N.T.S.



TAPPING SLEEVE & VALVE DETAIL

N.T.S.

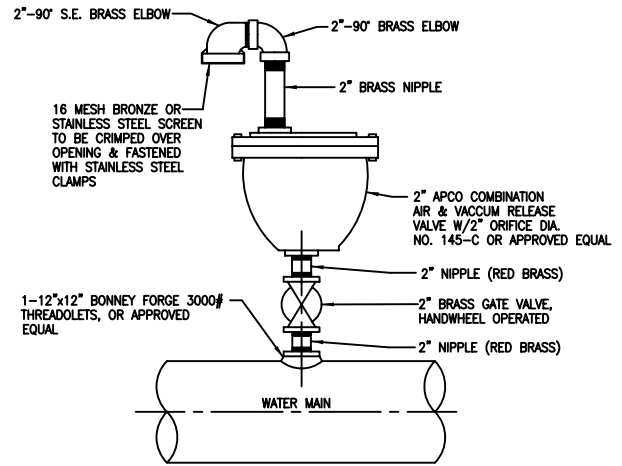


THRUST BLOCK DETAIL

N.T.S.

NOTE:
THRUST BLOCKS AT TRENCH FACE MUST
HAVE A MINIMUM BEARING SURFACE OF
10 SQ. FEET AND SHALL BE NO SMALLER
THAN 1.5 TIMES PIPE DIAMETER.
ALL CONCRETE SHALL BE 5 SACK
MIN., 3000 P.S.I.

Ⓐ = RESTRAINED JOINT



AIR RELEASE VALVE DETAIL

N.T.S.

NOTES:
POLYETHYLENE WRAP FOR IRON PIPE

NOTE:

- POLYETHYLENE FILM SHALL BE USED AS A WRAP TO PROTECT CAST IRON AND OTHER METALS IN A CORROSIVE SOIL ENVIRONMENT.
- AN 8 MIL POLYETHYLENE FILM WRAP SHALL BE REQUIRED AROUND ALL METAL PIPE AND APPURTENANCES (EXCEPT FIRE HYDRANTS).
- POLYETHYLENE FILM SHALL BE FURNISHED AND INSTALLED EITHER IN TUBULAR FORM PRIOR TO LOWERING THE PIPE IN TRENCH OR IN SHEET FORM.
- POLYETHYLENE TUBE ENCASUREMENT SHALL CONFORM WITH THE MINIMUM REQUIREMENTS OF "POLYETHYLENE ENCASUREMENT FOR GRAY AND DUCTILE CAST-IRON PIPING FOR WATER AND OTHER LIQUIDS", ANSI/AWWA C105, CURRENT REVISION. SOILS WITHIN A PROJECT SHALL BE TESTED IN ACCORDANCE WITH APPENDIX A OF ANSI/AWWA C105 TO ADEQUATELY DETERMINE THE REQUIREMENTS FOR ENCASUREMENT.
- ALL FITTINGS AND PIPE JOINTS WITHIN 10' OF A FITTING SHALL HAVE RESTRAINT JOINTS

SIZE	90° BEND		45° BEND		22 1/2° BEND		TEES		PLUGS	
	A	B	A	B	A	B	A	B	A	B
2 1/2"	12"	7"	6"	7"	6"	6"	12"	10"	8"	14"
6"	16"	10"	9"	10"	6"	12"	10"	12"	10"	21"
8"	22"	13"	12"	13"	8"	10"	13"	16"	12"	29"
10"	26"	17"	14"	17"	10"	13"	16"	20"	14"	36"
12"	29"	21"	16"	21"	11"	16"	18"	24"	16"	41"
14"	35"	24"	19"	24"	12"	20"	22"	27"	18"	48"
16"	38"	27"	21"	27"	12"	24"	24"	30"	20"	54"

**BENDS, TEES & PLUGS
FOR PIPE OF VARIOUS SIZES**

No.	DATE	REVISION

DESIGN ENGINEER: _____ DATE: _____



CITY OF SUGAR LAND, TEXAS
ENGINEERING DEPARTMENT

CONSTRUCTION PLANS FOR:

WATER LINE
CONSTRUCTION DETAILS

JOB No.:
DATE:
DESIGNED BY:
DRAWN BY:
CHECKED BY:
SCALE:

SL-14-06
SHEET OF

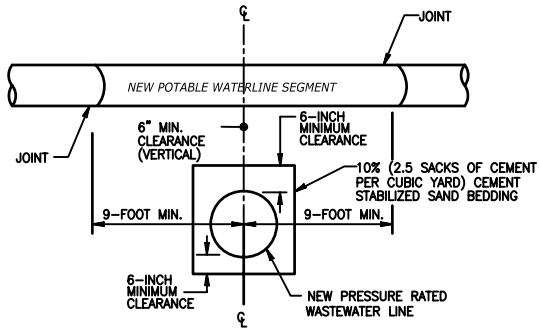
CONSTRUCTION NOTES:

- WATER LINE LESS THAN 6" (IN.) SHALL BE AWWA C-900 DR14 CLASS 200 WATER LINE GREATER THAN 6" (IN.) IN Ø SHALL BE AWWA C-900 DR 18 CLASS 150 WATER LINE WITH A DEPTH OF COVER 12' TO 24' SHALL BE AWWA C-905
- ALL FLUSHING VALVES AND GATE VALVES TO BE AMERICAN WATER WORKS ASSOC. (AWWA) STANDARD COUNTERCLOCKWISE OPENING WITH NON-RISING STEM DESIGN.
- ALL DUCTILE IRON PIPE SHALL BE CLASS 50 MORTAR LINED. NO A.C. PIPE WILL BE ALLOWED AND ALL DUCTILE IRON FITTINGS SHALL BE MORTAR LINED PUSHON OR MECHANICAL JOINTS.
- ALL BACKFILL WITHIN THE R.O.W. SHALL BE COMPACTED TO 95% STANDARD PROCTOR DENSITY.
- MINIMUM SPACING BETWEEN TAPS SHALL BE 2' AT ALTERNATING TAP ANGLES.

CAD FILE PATH:
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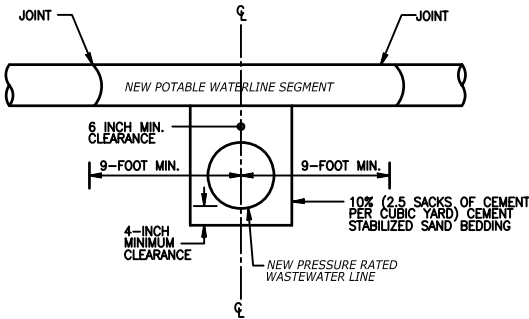
PLOT TIME:

I
NEW POTABLE WATERLINE CROSSING NEW PRESSURE RATED WASTEWATER LINE WITH SEGMENT LENGHTS OF EIGHTEEN (18) FEET OR GREATER, HAVING 6 INCHES OF VERTICAL CLEARANCE AND 4 FEET OF HORIZONTAL CLEARANCE

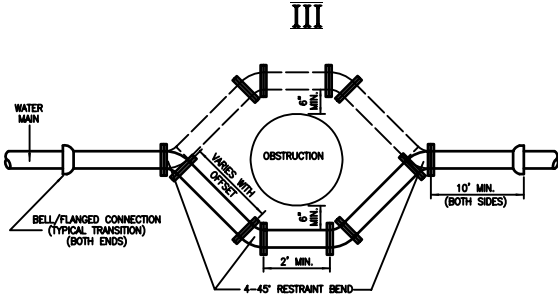


- WHENEVER POSSIBLE, THE CROSSING SHALL BE CENTERED BETWEEN JOINTS OF THE WASTEWATER LINE.
- MINIMUM WASTEWATER PIPE STIFFNESS OF 115 PSI AT 5% DEFLECTION.
- EMBED WASTEWATER LINE IN CEMENT STABILIZED SAND TO AT LEAST 12" INCHES BEYOND EACH JOINT OF CROSSED SECTION OF PIPE.

II
NEW POTABLE WATERLINE CROSSING NEW PRESSURE RATED WASTEWATER LINE



- WHENEVER POSSIBLE, THE CROSSING SHALL BE CENTERED BETWEEN JOINTS OF THE WASTEWATER LINE.
- MINIMUM WASTEWATER PIPE STIFFNESS OF 115 PSI AT 5% DEFLECTION.
- EMBED WASTEWATER LINE IN CEMENT STABILIZED SAND TO AT LEAST 12" INCHES BEYOND EACH JOINT OF CROSSED SECTION OF PIPE.



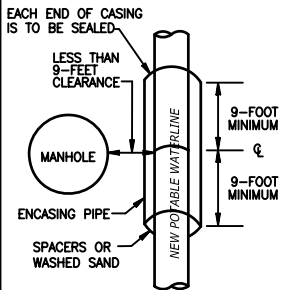
FOR A LINE TO PASS OVER AN OBSTRUCTION RATHER THAN UNDER, IT MUST HAVE ADEQUATE COVER AND BE APPROVED BY THE ENGINEERING DEPARTMENT.

MIN. PIPE WALL THICKNESS	
4"	- 0.250"
6"	- 0.280"
8"	- 0.322"
12"	- 0.375"
AND LARGER	

- NOTES:
1. PIPE MATERIAL SHALL BE AWWA C900 PVC, DR-14, 200 PSI WITH INTEGRAL PVC RESTRAINED JOINTS.
 2. OFFSET ASSEMBLY MUST PASS OVER THE OBSTRUCTION AS LONG AS THE MINIMUM CLEARANCE IS MAINTAINED. SPECIFIC APPROVAL FROM THE UTILITIES DEPARTMENT MUST BE GRANTED FOR THE OFFSET TO PASS UNDER THE OBSTRUCTION.
 3. MATERIAL AND COATINGS SHALL BE IN ACCORDANCE WITH WATER MAIN STANDARD SPECIFICATIONS.
 4. RESTRAIN EXISTING PIPING BEYOND OFFSET SECTION AS REQUIRED TO PREVENT MOVEMENT.
 5. ALL PVC PRODUCTS MUST BE LISTED ON CITY OF SUGAR LAND'S APPROVED PRODUCTS LIST.

PVC WATER PIPE OFFSET ASSEMBLY

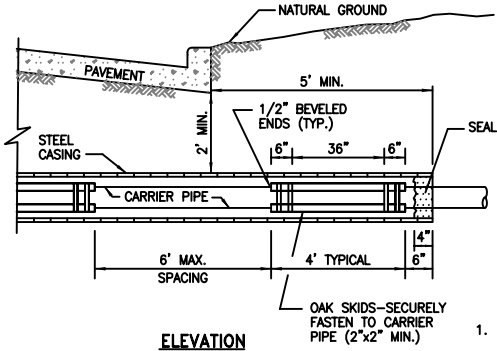
DETAIL OF WATER LINE CROSSING WASTEWATER FACILITIES WHERE SEPARATION IS LESS THAN 9' (NINE FEET)



ENCASING PIPE

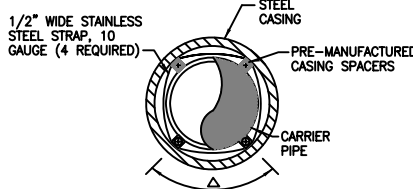
- 150 PSI PRESSURE CLASS PIPE MINIMUM 18 FEET LONG DIAMETER = 2 X WATERLINE DIAMETER
- SPACE AROUND CARRIER PIPE SHALL BE SUPPORTED AT FIVE (5) FOOT (OR LESS INTERVALS WITH SPACERS) OR SHALL BE FILLED TO THE SPRINGLINE WITH WASHED SAND.
- CENTERED ON CROSSING
- BOTH ENDS SEALED WITH CEMENT GROUT OR A MANUFACTURED WATER TIGHT SEAL.

MANHOLE CLEARANCE



ELEVATION

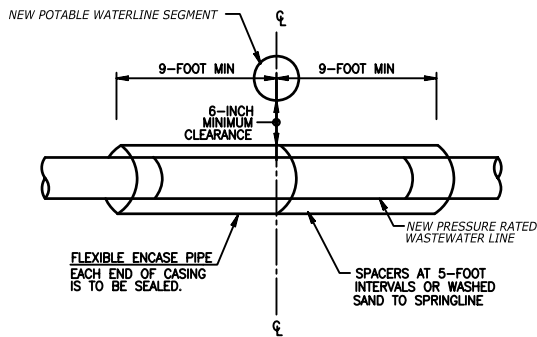
1. SPACING BETWEEN TIMBERS: = 90" FOR 12" AND UNDER, = 60" FOR PIPE OVER 12".
2. CASING SIZE AND THICKNESS SHALL CONFORM TO THE MINIMUM REQUIREMENTS AS SHOWN ON CASING SCHEDULE, OTHER PERMITS AS REQUIRED.
3. MAINTAIN 1/2" MINIMUM CLEARANCE BETWEEN THE MAXIMUM OUTSIDE DIAMETER OF CARRIER PIPE AND CASING AT ALL LOCATIONS.
4. DIMENSIONS ARE APPROXIMATE ONLY. CONTRACTOR SHALL INSTALL ADEQUATELY SIZED CASING TO ACCOMMODATE THE CARRIER PIPE.



CASING SCHEDULE		
CARRIER PIPE	NOMINAL CASING	MIN. WALL THICKNESS (IN.)
6"	12"	0.11
8"	14"	0.15
10"	16"	0.18
12"	18"	0.20

IV ENCASED WASTEWATER LINE

NEW POTABLE WATERLINE CROSSING NEW PRESSURE RATED WASTEWATER LINE WITH SEGMENT LENGHTS OF OF LESS THAN EIGHTEEN (18) FEET



- MINIMUM CASING PIPE STIFFNESS OF 115 PSI AT 5% DEFLECTION.
- MINIMUM CASING PIPE DIAMETER * 2 X WASTEWATER LINE DIAMETER.
- THE SPACE AROUND THE CARRIER PIPE SHALL BE SUPPORTED AT FIVE (F) FOOT (OR LESS). INTERVALS WITH SPACERS OR SHALL BE FILLED TO THE SPRINGLINE WITH WASHED SAND.
- EACH END CASING IS TO BE SEALED WITH WATER TIGHT NO-SHRINK GROUT OR MANUFACTURED WATER TIGHT SEAL.

No.	DATE	REVISION

SEAL: _____
DESIGN ENGINEER: _____ DATE: _____



CITY OF SUGAR LAND, TEXAS
ENGINEERING DEPARTMENT

CONSTRUCTION PLANS FOR:

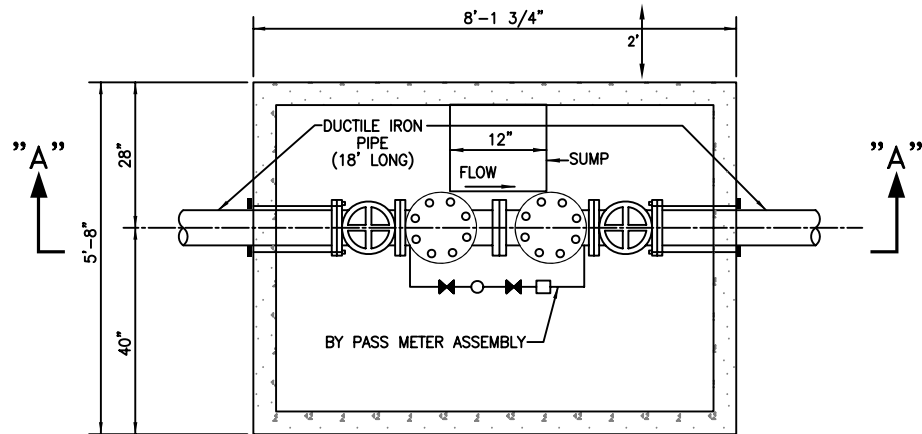
WATER LINE
CROSSING DETAILS

JOB No.:
DATE:
DESIGNED BY:
DRAWN BY:
CHECKED BY:
SCALE:

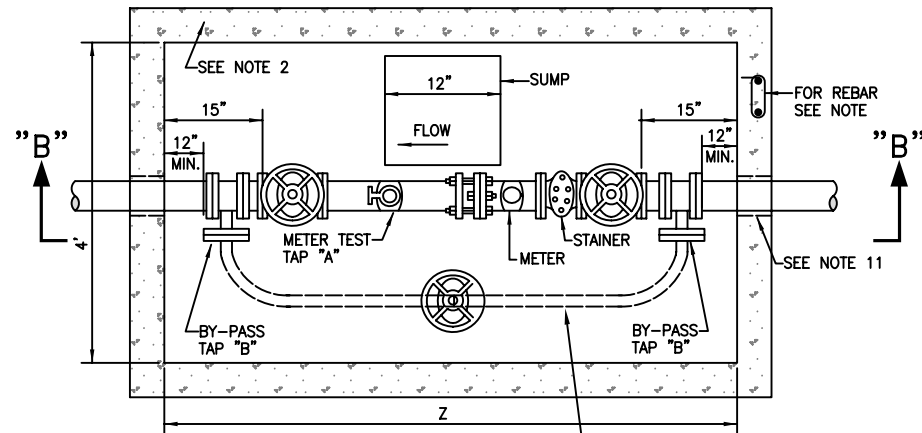
SL-15-06
SHEET OF

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PLOT TIME:

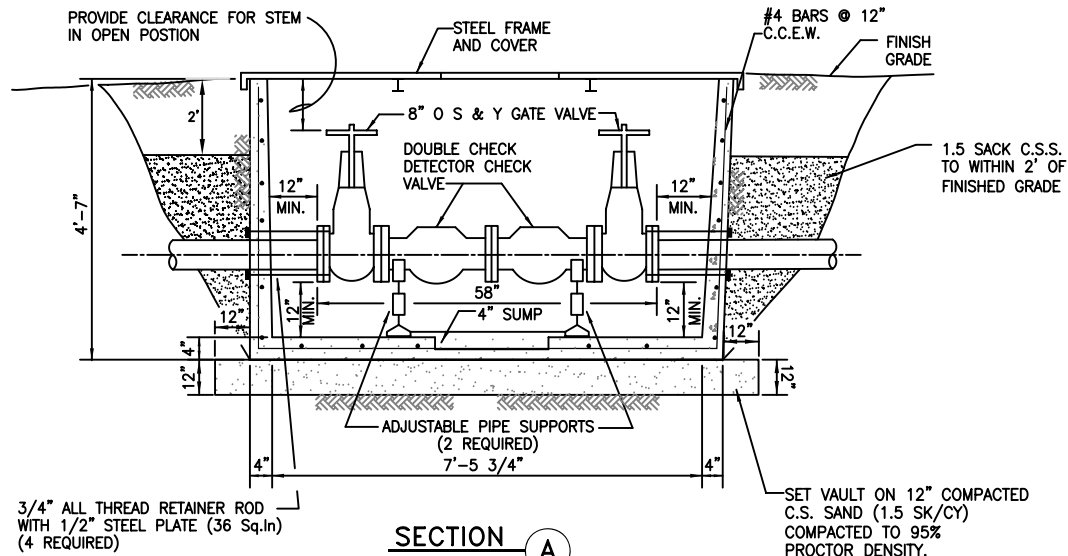


PLAN VIEW



PLAN VIEW

DUCTILE IRON BYPASS
FOR 3" AND ABOVE



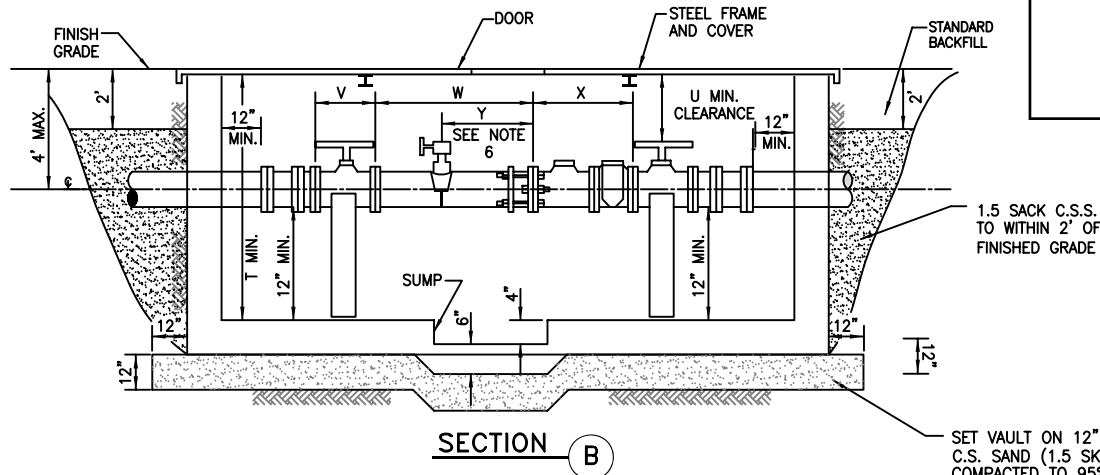
SECTION A

NOTES:

- SIAMESE CONNECTION MAY BE ALLOWED WITHIN THE VAULT WHEN APPROVED BY THE ENGINEERING DEPARTMENT.
- FIRE VALVE MAY BE SUBSTITUTED FOR GATE VALVE ON THE CUSTOMER SIDE. SUPPLIED BY PARK EQUIPMENT COMPANY, OR APPROVED EQUAL.

DETECTOR CHECK VALVE

N.T.S.



SECTION B

METER VAULT												
DOMESTIC												
METER SIZE	T	U	V	W	X	Y	Z	METER SIZE	T	U	V	Z
3"	4'-6"	25"	8"	11-1/2"	24"	9"	6'-10"	3"	4'-6"	25"	8"	6'-10"
4"	4'-6"	22"	9"	13-1/2"	29"	10"	7'-7"	4"	4'-6"	22"	9"	7'-7"
6"	5'-2"	26"	10-1/2"	13-1/2"	33"	13"	8'-2"	6"	5'-2"	26"	10-1/2"	8'-2"
								8"	6'-0"	31"	11-1/2"	9'-1"
								10"	7'-0"	37"	13"	10'-7"

3" TO 10"
METER

N.T.S.

NOTES:

- NOTIFY THE ENGINEERING DEPARTMENT AT (281) 275-2780 PRIOR TO CONSTRUCTION OF VAULT OR BY-PASS ASSEMBLY.
- THE METER VAULT CAN BE EITHER POURED IN PLACE OR PREFABRICATED. CONCRETE SHALL BE SIX INCHES (6") THICK AND BE 3,000 PSI WITH #4 REINFORCEMENT STEEL ON TWELVE INCH (12") CENTERS EACH WAY IF THE VAULT IS POURED IN PLACE. PREFABRICATED VAULTS SHALL BE FOUR INCHES (4") THICK AND BE 4,500 PSI CONCRETE WITH #4 REINFORCEMENT STEEL ON EIGHT INCH (8") CENTERS EACH WAY. THESE ARE MINIMAL SPECIFICATIONS.
- THE VAULT WILL NOT BE LOCATED IN ANY DRIVE OR PARKING AREAS AND MUST BE LOCATED IN A WATER METER EASEMENT.
- THE VAULT LID SHALL BE A BILCO LID, TYPE Q-4 SINGLE LEAF DESIGN. ANGLE FRAME IS 1/4-INCH STEEL WITH STRAP ANCHORS BOLTED TO THE EXTERIOR. THE LEAF IS 1/4-INCH STEEL DIAMOND PATTERN PLATE, PIVOTING ON TORSION BARS FOR EASY OPERATION. THE MINIMUM LIVE LOAD CAPACITY IS 150 POUNDS PER SQUARE FOOT. THE SIZE OF THE DOOR IS THREE FEET (3') BY THREE FEET (3').
- THE LID SHALL BE PAINTED WITH 43-38 TNEMEC DIFFUSED ALUMINUM PAINT OR APPROVED EQUAL, AND CENTERED OVER METER/NO.
- THE BY-PASS AND METER TEST TAP SHALL BE INSTALLED INSIDE THE VAULT. TAP "A" MUST BE AT LEAST TWO (2) PIPE DIAMETERS DOWNSTREAM OF THE METER. TAPS "B" AND "C" MUST BE MADE AT APPROXIMATE FORTY-FIVE DEGREE (45°) ANGLE ON EACH END OF THE PIPE AND CENTERED TEN INCHES (10") AWAY FROM THE WALL. ALL TAPS SHALL BE TWO INCHES (2") AND SHALL BE HARD PIPED
- THE STRAINER, METER AND FLEXIBLE COUPLING WILL NOT BE SET UNTIL THE METER VAULT AND TAPS ARE ACCEPTED BY THE DISTRICT OPERATOR. ALL UTILITIES MUST ALSO HAVE BEEN ACCEPTED AND RELEASED BY THE CITY OF SUGAR LAND PUBLIC WORKS DEPARTMENT PRIOR TO METER
- THE VALVES SHALL BE ANY RESILIENT WEDGE DESIGN GATE VALVE WHICH HAS RECEIVED FORMAL APPROVAL FROM THE CITY OF SUGAR LAND ENGINEERING DEPARTMENT. ALL VALVES SHALL BE FLANGED BOTH ENDS AND HAVE HAND WHEELS.
- THE METER VAULT SHALL BE SET ON 12" C.S.S. BEDDING AS SHOWN ON DETAIL DRAWINGS. A SUMP FOUR-INCHES (4") DEEP AND TWELVE INCHES (12") IN DIAMETER SHALL BE INSTALLED TO ONE SIDE IN THE CENTER OF THE BOTTOM SLAB. IF PRECAST VAULT IS USED, RAM-NEK SHALL BE USED TO SEAL ALL COLD JOINTS.
- ALL THE WALL PENETRATIONS SHALL BE MADE WITH A CAST IN PLACE WALL SLEEVE AS APPROVED BY THE CITY OF SUGAR LAND ENGINEERING DEPARTMENT. BREAKING OUT THE WALL USING A JACKHAMMER OR USING KNOCKOUT PANELS WILL NOT BE ALLOWED.
- A CONCRETE SUPPORT WILL BE INSTALLED UNDER EACH VALVE.
- DEPTH OF VAULT SHALL BE A MINIMUM OF 4-1/2' AND A MAXIMUM OF 6'
- ALL PIPING INSIDE THE VAULT SHALL BE DUCTILE IRON WITH FLANGE FITTINGS. ALL PIPING SHALL CONFORM TO THE REQUIREMENTS OF THE CITY OF SUGAR LAND ENGINEERING DEPARTMENT
- THE TYPE OF METER, TURBINE OR COMPOUND, WILL BE DETERMINED BASED ON THE APPLICATION AND APPROVED BY THE ENGINEERING DEPARTMENT.

No.	DATE	REVISION

SEAL: _____

DESIGN ENGINEER: _____ DATE: _____



CITY OF SUGAR LAND, TEXAS
ENGINEERING DEPARTMENT

CONSTRUCTION PLANS FOR:

WATER LINE
METER VAULT DETAILS

JOB No.:
DATE:
DESIGNED BY:
DRAWN BY:
CHECKED BY:
SCALE:

SL-16-06

SHEET OF

CAD FILE PATH:
PLOT DATE:



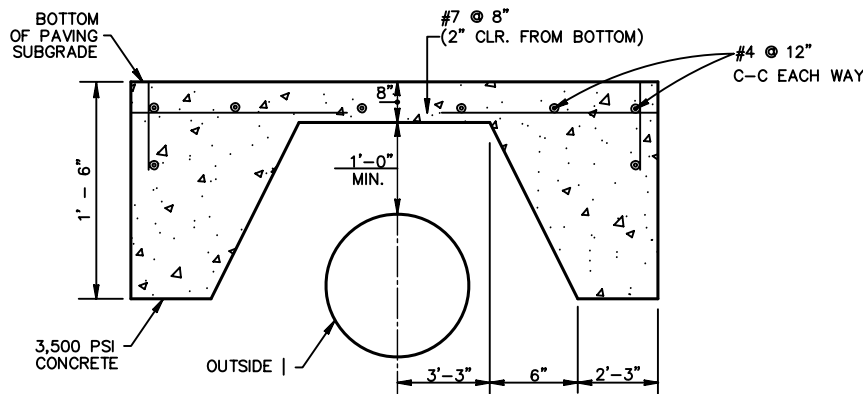
Ⓐ =RESTRAINED JOINT

1. FIRE HYDRANT REQUIRED WITHIN 50' LINEAR FEET OF THE FIRE DEPARTMENT CONNECTION.
2. FIRE VALVE MAY BE SUBSTITUTED FOR GATE VALVE ON THE CUSTOMER SIDE. SUPPLIED BY PARK EQUIPMENT COMPANY, OR APPROVED EQUAL.
3. ALL FIRE LINE VAULTS SHALL BE EQUIPPED WITH A SUMP PUMP CAPABLE OF MAINTAINING WATER LEVELS BELOW THE CENTER LINE OF THE CHECK VALVES. OUTLET SHALL BE CONNECTED TO SITE STORM SEWER SYSTEM.
4. SUMP PUMP MAY BE ELIMINATED IF BOX CAN BE DRAINED VIA GRAVITY TO SITE STORM SEWER SYSTEM.
5. ALL COMPONENTS SHALL BE INSTALLED IN ACCORDANCE WITH NFPA 13 "STANDARDS FOR THE INSTALLATION OF SPRINKLER SYSTEMS".
6. REFER TO GENERAL NOTES, WATER LINE AND STORM SEWER NOTES.
7. ALL FITTINGS AND PIPE JOINTS WITHIN 10' OF A FITTING SHALL HAVE RESTRAINT JOINTS



No.	DATE	REVISION
SEAL:		
DESIGN ENGINEER:		DATE
<div><div><div><div><div></div><div></div><div></div><div></div><div></div></div><div></div><div></div><div></div><div></div><div></div></div></div><div>CITY OF SUGAR LAND TEXAS</div></div>		
CITY OF SUGAR LAND, TEXAS ENGINEERING DEPARTMENT		
<u>CONSTRUCTION PLANS FOR:</u>		
WATER LINE FIRE SERVICE METER VAULT		
JOB No.: DATE: DESIGNED BY: DRAWN BY: CHECKED BY: SCALE:	SL-17-06 SHEET OF	

CAD FILE PATH:
PLOT DATE:

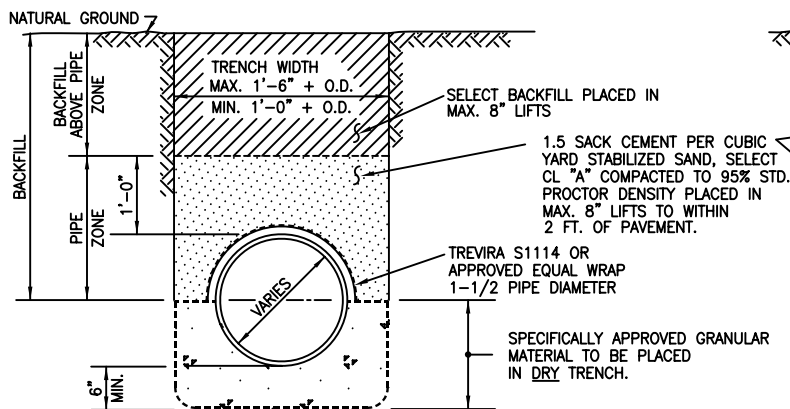


PROTECTIVE SLAB DETAIL
ZERO LOAD TRANSFER CONCRETE SLAB

CONSTRUCTION NOTES

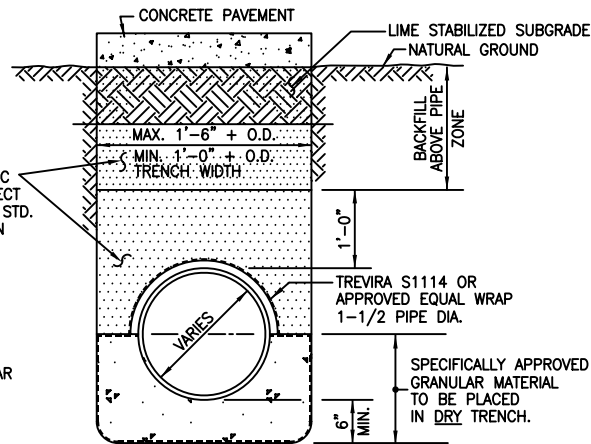
1. CONTRACTOR SHALL CONTACT SUGAR LAND ENGINEERING DEPARTMENT IMMEDIATELY IF WET SAND CONDITIONS ARE ENCOUNTERED.
2. LIMESTONE AND RECYCLED CONCRETE DIMENSIONS SHOWN ARE TYPICAL BUT MAY BE VARIED BY ORDER OF CITY ENGINEER.
3. LIMESTONE OR RECYCLED CONCRETE SHALL BE IN ACCORDANCE WITH TxDOT SPECIFICATION No. 248 FLEXIBLE BASE, TYPE A, GRADE 2 AGGREGATE.
4. NO BEDDING SHALL BE INSTALLED IN WET CONDITIONS. WHEN WELL POINTING OR IN WET SAND CONDITIONS, MAINTAIN GROUND WATER 1 (FT) BELOW BOTTOM OF TRENCH FOR A MINIMUM OF 24-HRS AFTER BEDDING AND BACKFILL IS IN PLACE.
5. ALL MATERIALS SHALL BE FROM THE APPROVED PRODUCTS LIST UNLESS SPECIFICALLY APPROVED BY THE CITY ENGINEER.
6. SANITARY SEWER BEDDING FOR WET SAND CONDITIONS SHALL BE AS PER MODIFIED "A" OR "A-A".
7. ALL SAND BEDDING FOR WATER LINES SHALL BE CLEAN, MECHANICALLY COMPACTED BANK SAND.
8. REFER TO: MANHOLE DETAILS, SANITARY, C.S.S., GENERAL, WATER CROSSING, WATER DISTRIBUTION DETAILS AND NOTES.
9. ALL BEDDING WILL BE COMPACTED TO 95% STANDARD PRODUCT DENSITY.

SANITARY FORCE MAIN & WATER LINE
BEDDING AND BACKFILL



USE FOR SEWERS IN EASEMENTS & SIDE LOTS
NOT UNDER EXISTING OR FUTURE ROADS, STREETS, OR DRIVEWAYS.

MODIFIED "A"
N.T.S.




MODIFIED "A-A"
N.T.S.

SANITARY SEWER
BEDDING AND BACKFILL

REFER TO:

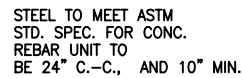
1. GENERAL NOTES
2. C.S.S. NOTES

No.	DATE	REVISION
SEAL:		
_____ DATE _____		
DESIGN ENGINEER:		
		
CITY OF SUGAR LAND, TEXAS ENGINEERING DEPARTMENT		
<u>CONSTRUCTION PLANS FOR:</u>		
WATER LINE, SANITARY SEWER FORCE MAIN BEDDING DETAILS		
JOB No.: DATE: DESIGNED BY: DRAWN BY: CHECKED BY: SCALE:	SL-18-06 SHEET OF	

CAD FILE PATH:
PLOT DATE:



N.T.S



N.T.S



N.T.S.

(CONC. PAVING TO CONC. BASE)



N.T.S.



N.T.S.



CONSTRUCTION NOTE:

ALL NEW CURB REQUIRES 3,000 P.S.I. @ 28-DAYS.



N.T.S



N.T.S.
& SANITARY)
PAVEMENT



N.T.S

DESIGN ENGINEER: _____ DATE _____



N.T.S.

NOTES:

1. FOR PVM'T DEPTHS OF 6" USE 1/2" DEFORMED BARS, 24" C-C, 10" LAPS. ALL REINFORCING STEEL SHALL CONFORM TO GRADE 60, A.S.T.M. NO. A615. LAP SPICES TO BE A MINIMUM OF 10 INCHES. STAGGER SPICES IN ADJACENT BARS.



N.T.S.



(FOR USE IN CONNECTING CONC.
PVMT. TO ASPHALT PVMT.)
(PROP. OR EXIST.)



CONSTRUCTION PLANS FOR:

CONCRETE PAVEMENT CONSTRUCTION DETAILS

JOB No.:
DATE:
DESIGNED BY:
DRAWN BY:
CHECKED BY:
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SL-20-06

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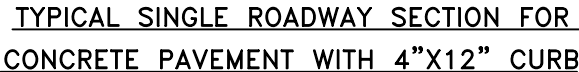
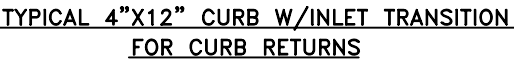


- 1.) 1.0 LBS. OF APPROVED NON-METALLIC FIBER MESH PER C/Y IN 4"x12" CURBS.
- 2.) #3 RE-BAR STIRRUPS TO BE PLACED AT INTERVALS OF 2' (FT) C-C.
- 3.) #4 RE-BAR LONGITUDINAL SHALL BE TIED TO EACH STIRRUP
- 4.) MOUNTABLE CURB ONLY ALLOWED ON $\leq 41'$ (FT), UNDIVIDED, RESIDENTIAL ROADWAYS WITHIN SUBDIVISIONS.



4"x12" MOUNTABLE CONCRETE CURB AND
TRANSITION CURB NOTES:

1. 6-INCH CONCRETE CURB TO BE CONSTRUCTED ON ALL ESPLANADES, ISLANDS AND NON-RESIDENTIAL STREETS. RESIDENTIAL STREETS MAY BE CONSTRUCTED WITH EITHER 6-INCH CONCRETE CURB OR 4-INCH x 12-INCH CONCRETE CURB AS NOTED ON PLANS.
2. ALL 4-INCH x 12-INCH CONCRETE CURBS TO BE POURED SEPARATE FROM PROPOSED CONCRETE PAVEMENT.
3. TRANSITIONS FROM 6-INCH CONCRETE CURB TO 4-INCH x 12-INCH CONCRETE CURB TO BE ACCOMPLISHED WITHIN 5 FEET (TYP.), UNLESS OTHERWISE SHOWN. REINFORCING STEEL AS SHOWN IN "4-INCH x 12-INCH TRANSITION CURB" DETAIL IS TO BE INSTALLED.



* SEE 4" x 12" MOUNTABLE CURB DETAIL
(THIS SHEET)

1. 6 INCH, 5.5 SACK CEMENT PER CUBIC YARD CONCRETE, 3500 PSI REINFORCED CONCRETE WITH #4 BARS 24 INCHES C-C, E.W. IS THE MINIMUM ACCEPTABLE PAVEMENT CONSTRUCTION FOR RESIDENTIAL STREETS.
2. 7 INCH, 5.5 SACK CEMENT PER CUBIC YARD CONCRETE, 3500 PSI REINFORCED CONCRETE WITH #4 BARS 24 INCHES C-C, IS THE MINIMUM ACCEPTABLE PAVEMENT CONSTRUCTION FOR COLLECTOR STREETS
3. EIGHT (8) INCH, 5.5 SK, 3500 PSI @ 28 DAYS, REINFORCED WITH #4 18" C-C EACH WAY IS THE MINIMUM ACCEPTABLE FOR ARTERIAL STREETS.
4. TRANSVERSE EXPANSION JOINTS ARE REQUIRED AT MAXIMUM SPACING OF 60'-0" C-C, AND VERTICAL CURB JOINTS TO BE SEALED WITH SPECIAL JOINT SEALANT ASTM-D-1190-74 OR AASHTO-M173-60 (ELASTOMERIC TYPE, HOT POURED)
5. TRANSVERSE EXPANSION JOINTS ARE REQUIRED AT MAXIMUM SPACING OF 20'-0" C-C, AND VERTICAL CURB JOINTS TO BE SEALED WITH SPECIAL JOINT SEALANT ASTM-D-1190-74 OR AASHTO-M173-60 FOR PAVEMENT GREATER THAN 8" THICK (ELASTOMERIC TYPE, HOT POURED)
6. FOR PAVEMENT FINISH USE BURLAP DRAG OR BELTED FINISH. CURING COMPOUND REQUIRED ON ALL CONCRETE.
7. STORM WATER POLLUTION PROTECTION SHALL BE DESIGNED, CONSTRUCTED, MAINTAINED AND SHALL BE IN TOTAL COMPLIANCE WITH THE STORM WATER QUALITY MANUAL OF THE CITY OF SUGAR LAND.
8. UNSTABLE SUBGRADE SHALL BE EXCAVATED AND REPLACED WITH CEMENT STABILIZED SAND.
9. USE 1"x2" REDWOOD STAKES FOR HEADERS.
10. EDGE ALL SIDES WITH EDGING TOOL.
1. DOWEL SHALL BE 3/4" DIAMETER, WITH MINIMUM 8" PENETRATION (BOTH S
2. IT IS THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE CITY OF SUGAR LAND OF ANY BIRDBATH PROBLEMS PRIOR TO CONSTRUCTION OF DRIVEWAY.
3. REFER TO GENERAL, C.S.S., AND PAVEMENT NOTES.
4. 1.0 LBS. OF APPROVED POLYPROPYLENE FIBER MESH PER C/Y IN 4"x12" CURBS REQUIRED.

No.	DATE	REVISION
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SEAL:

DESIGN ENGINEER



CITY OF SUGAR LAND, TEXAS
ENGINEERING DEPARTMENT

CONSTRUCTION PLANS FOR:

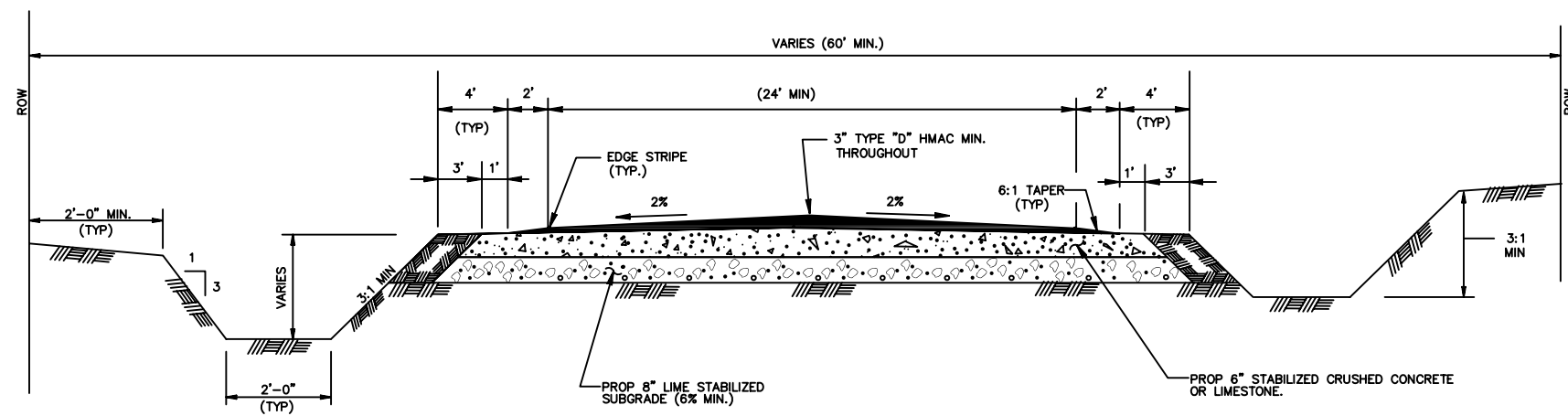
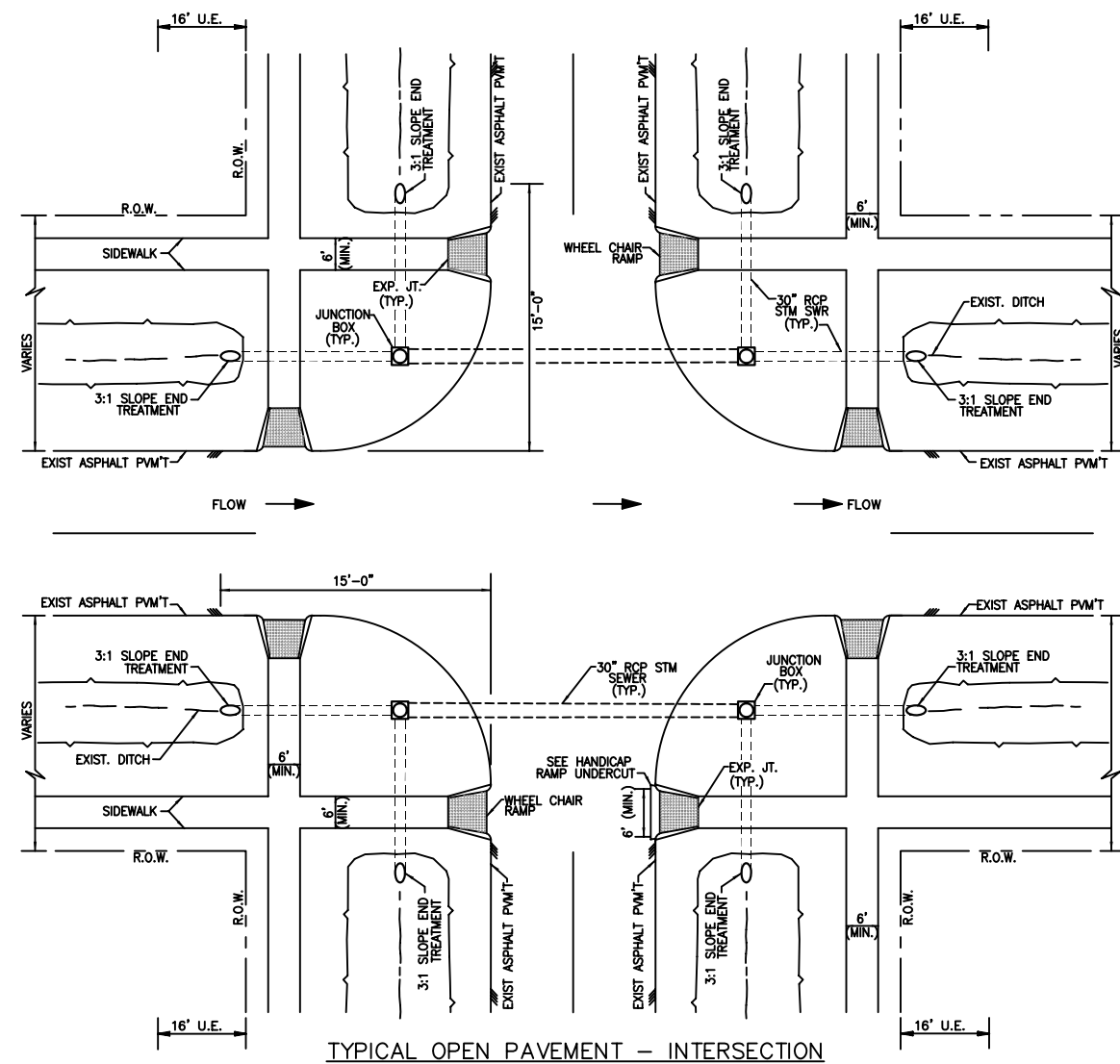
RESIDENTIAL CURB CONSTRUCTION DETAILS

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DATE:
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DRAWN BY:
CHECKED BY:
SCALE:

SL-21-06

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ASPHALT PAVEMENT – DITCH SECTION

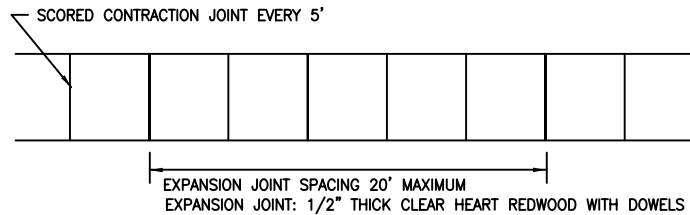
CROSS SECTION

REFER TO:

1. GENERAL NOTES
2. ASPHALT NOTES
3. BASE NOTES
4. TACK & EMULSION NOTES

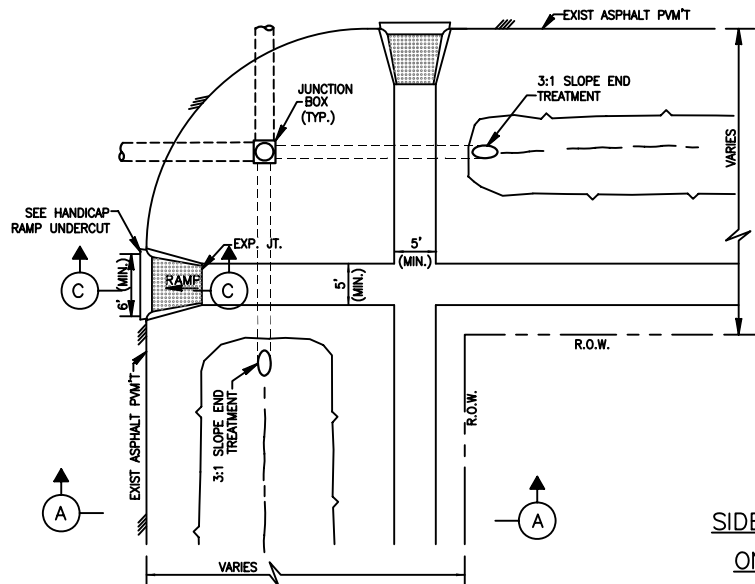
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PLOT TIME:



SIDWALK JOINT DETAILS

N.T.S.



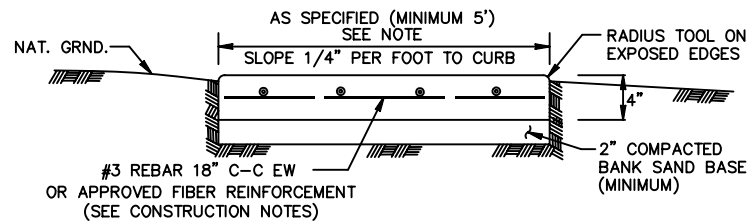
CROSS RAMP
SIDWALK CONNECTION
ON OPEN DITCH

NOTES:

- EXISTING CURB AND GUTTER TO BE SAW CUT, REMOVED AND REPLACED. DOWEL STEEL FOR MINIMUM REINFORCING OVERLAP OF 10 INCHES (10") DOWELS SHALL BE EIGHTEEN INCHES (18") LONG AND EPOXYED A MINIMUM OF (8") EIGHT INCHES INTO EXISTING PAVEMENT.
- IF SIDEWALKS ARE NEITHER EXISTING NOR PROPOSED WHERE WHEELCHAIR RAMP ACCESS IS REQUIRED, CONCRETE SIDEWALKS SURFACE 4 1/2" THICK SHALL BE INSTALLED TO PROVIDE ACCESS TO THE PEDESTRIAN PUSH BUTTONS.
- DETECTABLE WARNINGS REQUIRED BY T.A.S. SECTIONS 4.1 AND 4.7 SHALL COMPLY WITH T.A.S. SECTION 4.29
- THE MATERIAL USED TO PROVIDE CONTRAST SHALL BE AN INTEGRAL PART OF THE WALKING SURFACE. DETECTABLE WARNINGS USED ON INTERIOR SURFACE SHALL DIFFER FROM ADJOINING WALKING SURFACES IN RESILIENCY OR SOUND-ON-CANE.
- DETECTABLE WARNING SURFACE SHALL COVER THE ENTIRE WIDTH AND DEPTH OF RAMP.
- DETECTABLE WARNINGS SHALL BE INSTALLED WITH PAVERS IN ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS.
- CONCRETE PAVER UNITS SHALL MEET ALL REQUIREMENTS OF ASTM C-935, C-33, AND SHALL BE PLACED IN A TWO BY TWO UNIT BASKET WEAVE PATTERN, UNLESS SHOWN OTHERWISE IN THE PLANS.
- CONCRETE PAVER UNITS SHALL HAVE A TRUNCATED DOME TOP SURFACE FOR DETECTABLE WARNING TO PEDESTRIANS. DOMES SHALL BE ALIGNED IN THE DIRECTION OF PEDESTRIAN TRAVEL.
- CONCRETE PAVER UNIT COLOR FOR THE RAMP SHALL BE A CONTRASTING COLOR THAT PROVIDES A LIGHT REFLECTIVE THAT SIGNIFICANTLY CONTRASTS WITH THE ADJACENT SURFACES. ADJACENT SURFACES INCLUDE SIDE FLARES.
- CONCRETE PAVER UNITS SHALL BE SAW CUT ONLY, AND ANY CUT UNIT SHALL NOT BE LESS THAN 25% OF A FULL UNIT.

CONSTRUCTION NOTES:

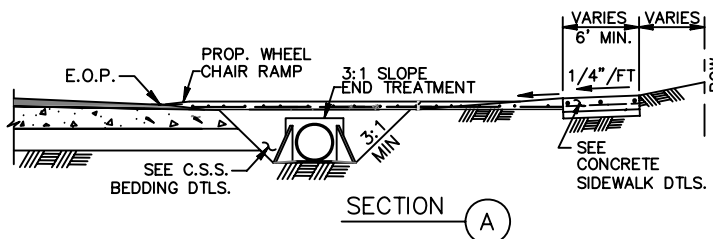
- THE MAXIMUM WIDTH BETWEEN EXPANSION JOINTS SHALL NOT EXCEED 20'-0"
- EXPANSION JOINT IS TO BE 1/2" THICK CLEAR HEART REDWOOD WITH DOWELS.
- SCORED CONTRACTION JOINTS SHALL BE EVERY 5' OR EQUAL TO WIDTH OF SIDEWALK.
- ALL EARTHEN AREAS ARE TO BE SODDED UNLESS SHOWN OTHERWISE ON DRAWINGS.
- 6 INCH, 5 SACK CEMENT PER CUBIC YARD CONCRETE, 3000 PSI. REINFORCED CONCRETE WITH #3 BARS, 18 INCHES C-C, FOR SIDEWALKS, #4 BARS 18" C-C FOR WHEEL CHAIR RAMPS IS THE MINIMUM ACCEPTED. MINIMUM 3 LONGITUDINAL BARS. FIBER REINFORCING SIDEWALKS-STEEL AND POLYPROPYLENE BLENDED FIBER REINFORCEMENT SYSTEM SUCH AS NOVOMESH #3 AS MANUFACTURED BY S.I. CONCRETE SYSTEMS (OR PRE-APPROVED EQUAL) MAY BE USED AS AN ALTERNATE TO CONVENTIONAL REBAR REINFORCING AT A DOSAGE RATE OF 24 LBS. PER CUBIC YARD OF CONCRETE.
- USE RADIUS TOOL ON ALL EXPOSED EDGES.
- TOP OF THE SIDEWALK ELEVATION TO BE TOP OF CURB.
- MEMBRANE CURING COMPOUND IS REQUIRED AS DESCRIBED IN ITEM 526 IN THE TxDOT STANDARD SPECIFICATIONS FOR CONSTRUCTION.
- REFER TO GENERAL NOTES AND CONCRETE/PAVING NOTES.
- SIDEWALK EXPANSION JOINTS SHALL CONFORM TO STREET EXPANSION JOINT STANDARDS.



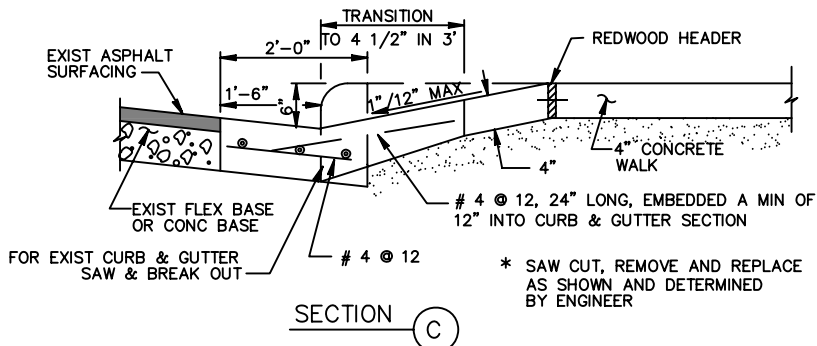
CONCRETE SIDEWALK

NOTE:

BANK SAND IS DEFINED AS A WELL-GRADED SAND, FREE OF SILT, CLAY, LOAM, FRIABLE OR SOLUBLE MATERIALS AND ORGANIC MATTER, MEETING THE UNIFIED SOILS CLASSIFICATION SYSTEM GROUP SYMBOL SW CRITERIA W/ A PLASTICITY INDEX OF < 10. AND NO MORE THAN 12% OF MATERIAL CAN PASS THE No. 200 SIEVE.

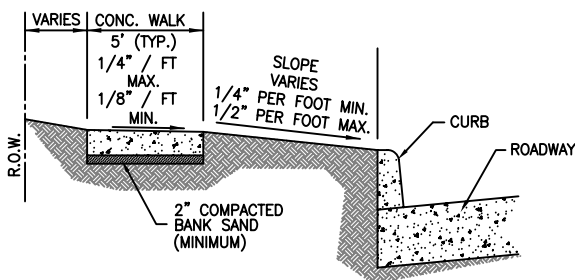


SECTION A



SECTION C

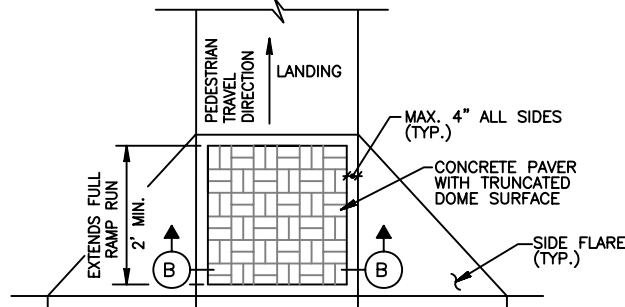
HANDICAP RAMP CURB & GUTTER*



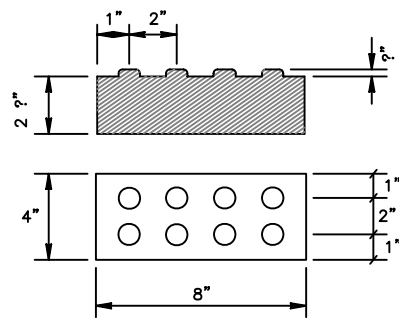
NOTE:

SEE SIDEWALK, CONC/PAVING, AND GENERAL NOTES

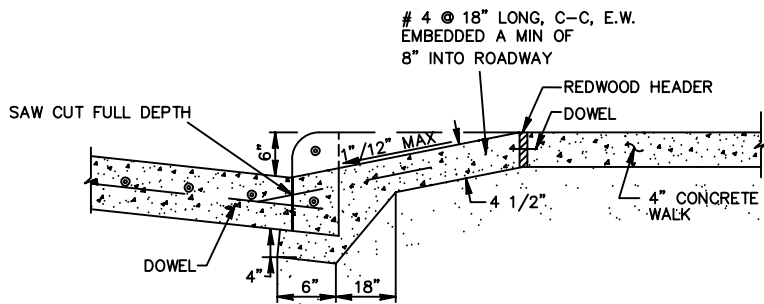
TYPICAL SINGLE ROADWAY SIDEWALK



TRUNCATED DOME PATTERN CURB RAMP



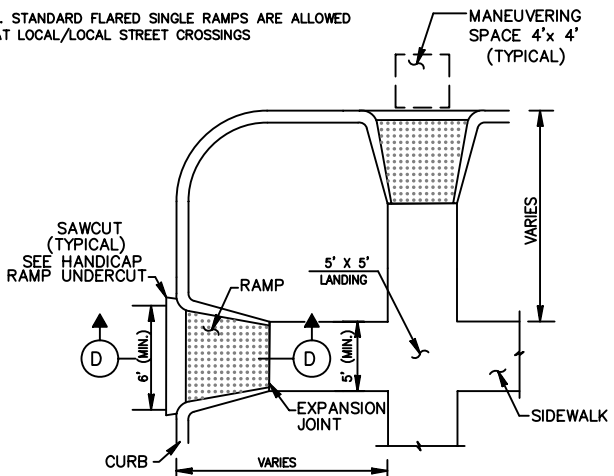
CONCRETE PAVER WITH
TRUNCATED DOME SURFACE



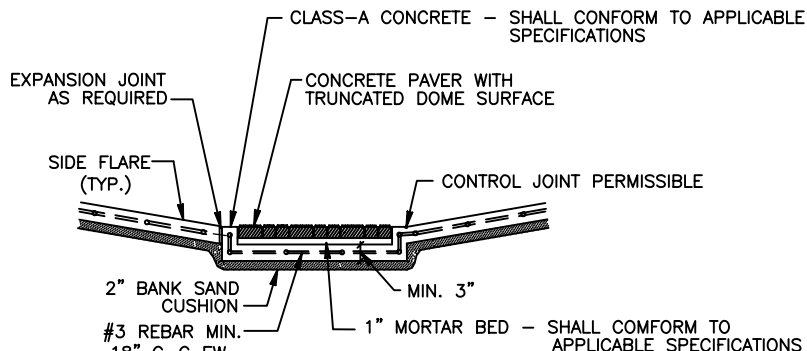
SECTION D

HANDICAP RAMP UNDERCUT

- STANDARD FLARED SINGLE RAMPS ARE ALLOWED AT LOCAL/LOCAL STREET CROSSINGS



WHEELCHAIR RAMP
SIDWALK CONNECTION



SECTION B

No.	DATE	REVISION

SEAL:

DESIGN ENGINEER: _____ DATE: _____



CITY OF SUGAR LAND, TEXAS
ENGINEERING DEPARTMENT

CONSTRUCTION PLANS FOR:

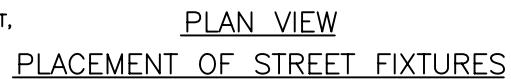
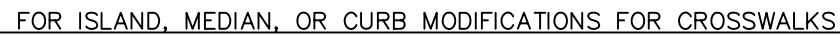
WHEEL CHAIR RAMP &
SIDWALK DETAILS I

JOB No.:
DATE:
DESIGNED BY:
DRAWN BY:
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SCALE:

SL-23-06

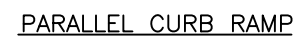
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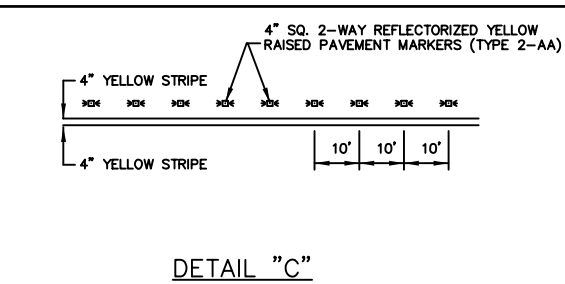
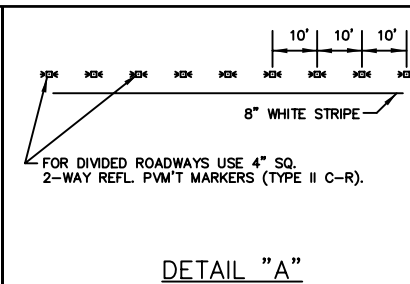
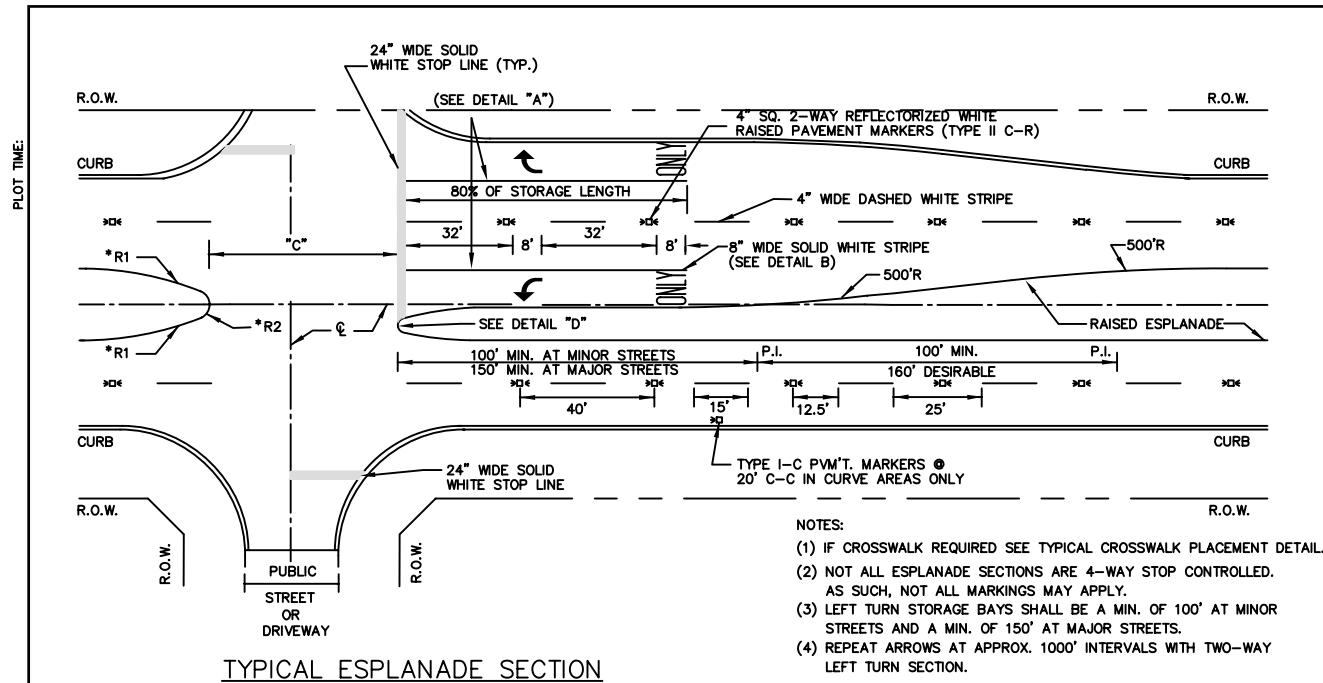


(ITEMS NOT INTENDED FOR PUBLIC USE.
MINIMUM 4' x 4' CLEAR GROUND SPACE
REQUIRED AT PUBLIC USE FIXTURES.)

1. ALL SLOPES ARE MAXIMUM ALLOWABLE. THE LEAST POSSIBLE SLOPE THAT WILL STILL DRAIN PROPERLY SHOULD BE USED. RAMP LENGTH OR GRADE OF APPROACH SIDEWALKS MAY BE ADJUSTED AS DIRECTED
2. THE MINIMUM SIDEWALK WIDTH IS 5' (FEET). THE LANDING SHALL BE 5' x 5' WITH A MAXIMUM SLOPE OF 2% IN ANY DIRECTION. MAXIMUM ALLOWABLE CROSS SLOPE ON SIDEWALK AND RAMP SURFACES IS 2%. USUAL SIDEWALK CROSS SLOPE EQUALS 1.5%. CHANGES IN LEVEL GREATER THAN 1/4" (IN.) ARE NOT PERMITTED.
3. MANEUVERING SPACE AT THE BOTTOM OF CURB RAMPS SHALL BE A MINIMUM OF 5' x 5' WHOLLY CONTAINED WITHIN THE CROSSWALK AND WHOLLY OUTSIDE THE PARALLEL VEHICULAR TRAVEL PATH.
4. ANY PART OF THE ACCESSIBLE ROUTE WITH A SLOPE GREATER THAN 1:20 (5%) SHALL BE CONSIDERED A RAMP. IF A RAMP HAS A RISE GREATER THAN 6" (IN.) OR A HORIZONTAL PROJECTION GREATER THAN 72 INCHES, THEN IT SHALL HAVE HANDRAILS ON BOTH SIDES, WITH THE FOLLOWING EXCEPTIONS:
 - A.) HANDRAILS ARE NOT REQUIRED ON CURB RAMPS. CURB RAMPS SHALL BE PROVIDED WHEREVER AN ACCESSIBLE ROUTE CROSSES (PENETRATES) A CURB.
 - B.) THE LEAST POSSIBLE GRADE SHOULD BE USED TO MAXIMIZE ACCESSIBILITY. WHERE STRUCTURALLY IMPRACTICAL TO ACHIEVE TEXAS ACCESSIBILITY STANDARDS (TAS) COMPLIANCE, THE RUNNING SLOPE OF SIDEWALKS AND CROSSWALKS, WITHIN THE PUBLIC R.O.W., MAY FOLLOW THE GRADE OF THE PARALLEL ROADWAY WITHOUT INVOKING TEXAS ACCESSIBILITY STANDARDS (TAS) VARIANCES FOR LANDINGS OR HANDRAILS. WHERE A CONTINUOUS GRADE GREATER THAN 5% MUST BE PROVIDED, HANDRAILS MAY BE DESIRABLE ON ONE OR BOTH SIDES OF THE SIDEWALK TO IMPROVE ACCESSIBILITY. HANDRAILS MAY ALSO BE NEEDED TO PROTECT PEDESTRIANS FROM POTENTIALLY HAZARDOUS CONDITIONS.
5. CURB RAMPS WITH RETURNED CURBS MAY BE USED ONLY WHERE PEDESTRIANS WOULD NOT NORMALLY WALK ACROSS THE RAMP. OTHERWISE, FLARED SIDES SHALL BE PROVIDED. ALL CONCRETE SURFACES SHALL RECEIVE A LIGHT BROOM FINISH UNLESS NOTED OTHERWISE IN THE PLANS.
6. RAMP TEXTURES MUST CONSIST OF TRUNCATED DOME SURFACES, IN ACCORDANCE WITH ADA AND TEXAS DEPARTMENT OF LICENSING AND REGULATIONS (TDLR). TEXTURES ARE REQUIRED TO BE DETECTABLE UNDERFOOT. TEXTURES ALSO SHALL CONTRAST VISUALLY WITH ADJOINING SURFACES. SURFACES THAT WOULD ALLOW WATER TO ACCUMULATE ARE PROHIBITED.
7. ADDITIONAL INFORMATION ON CURB RAMP LOCATION, DESIGN, LIGHT REFLECTIVE VALUE AND TEXTURE MAY BE FOUND IN THE CURRENT EDITION OF THE TEXAS ACCESSIBILITY STANDARDS (TAS) PREPARED AND ADMINISTERED BY THE TEXAS DEPARTMENT OF LICENSING AND REGULATION (TDLR).
8. RAISED MEDIANS SEPARATE OPPOSING DIRECTIONS OF TRAFFIC AND PROVIDE A REFUGE AREA FOR PEDESTRIANS UNABLE TO CROSS THE ENTIRE ROADWAY IN THE ALLOTTED SIGNAL PHASE. TO SERVE AS A REFUGE AREA, THE MEDIAN SHALL BE A MINIMUM OF 5' (FT.) WIDE. MEDIANS SHOULD BE DESIGNED TO PROVIDE ACCESSIBLE PASSAGE OVER OR THROUGH THEM.
9. SMALL CHANNELIZATION ISLANDS, WHICH CAN NOT PROVIDE A MINIMUM 5' x 5' LANDING AT THE TOP OF RAMPS, SHALL BE CUT THROUGH LEVEL WITH THE SURFACE OF THE STREET.
10. CROSSWALK DIMENSIONS, CROSSWALK MARKINGS AND STOP BAR LOCATIONS SHALL BE AS SHOWN IN THE PLANS. AT INTERSECTIONS WHERE CROSSWALK MARKINGS ARE NOT REQUIRED, RAMPS SHALL BE ALIGNED WITH THEORETICAL CROSSWALKS, OR AS DIRECTED BY THE ENGINEER.
11. EXISTING FEATURES THAT COMPLY WITH T.A.S. MAY REMAIN IN PLACE UNLESS OTHERWISE SHOWN ON THE PLANS.
12. TRAFFIC SIGNAL OR ILLUMINATION POLES, GROUND BOXES, CONTROLLER BOXES, SIGNS, DRAINAGE FACILITIES AND OTHER ITEMS SHALL BE PLACED SO NOT TO OBSTRUCT THE ACCESSIBLE ROUTE.



No.	DATE			REVISION					
SEAL:									
_____ DATE _____									
DESIGN ENGINEER:									
<div><p>CITY OF SUGAR LAND, TEXAS ENGINEERING DEPARTMENT</p></div>									
<u>CONSTRUCTION PLANS FOR:</u>									
WHEEL CHAIR RAMP & SIDEWALK DETAILS II									
JOB No.: DATE: DESIGNED BY: DRAWN BY: CHECKED BY: SCALE:					SL-24-06 SHEET OF				



RADIUS DIMENSIONS

ESPLANADE	*R1	*R2
<8'	N/A	W/2
8'-38'	90'	W/5
>38'	N/A	15'

PAVEMENT MARKER LEGEND

